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THE IMPERIAL IVORY-BILLED WOODPECKER,
CAMPEPHILUS IMPERIALIS (GOULD).

BY E. W. NELSON.

Plate III.

AT A meeting of the Zoölogical Society of London, held on August 14, 1832, specimens were exhibited of a previously undescribed Woodpecker, remarkable for its extraordinary size. These specimens, the male of which measured two feet in length, were said to have been obtained by Mr. Gould from "that little explored district of California which borders the territory of Mexico"—a statement which serves as a good illustration of the vague ideas of American geography that prevailed among naturalists in those days. Mr. Gould made a felicitous choice of name when he called this bird *Picus imperialis* for it is by far the largest and most striking member of the Woodpecker family in the world. The authors of the 'Biologia Centrali-Americana' say that Gould's original skins are made up like those of Floresí, a mining engineer, who collected birds in the Sierra Madre Mountains near Bolaños, Jalisco, early in the century. My own observations prove that the Imperial Ivory-bill is found near that place, and there is little doubt that it is the type locality. The home of this Woodpecker is in such a remote and rarely visited region that despite the large size and conspicuous plumage of the bird, many years passed after its discovery before any additions

were made to its history and nothing has been published on its habits. In 1890 the British Museum Catalogue enumerated several additional specimens and gave its range as extending from Ciudad in the State of Durango, northward through Chihuahua to within fifty miles of the Arizona border. The latter record, first published in 'The Auk,' was made by Lieut. H. C. Benson, U. S. A., during a scouting expedition after Apache Indians in northern Chihuahua. Afterwards the late Dr. Audley C. Buller secured specimens about 150 miles south of Bolaños, in the Sierra de Juanacatlan, western Jalisco, and Mr. W. B. Richardson took others in the Sierra de Valparaiso in northern Zacatecas.

During my visit to the former locality, in the spring of 1897, the residents told me that Ivory-bills were found sparingly in the surrounding mountains and exhibited the scalp of one that had been killed a few months before. In company with two natives, my assistant and I rode over the undulating mountain summits for an entire day on a fruitless quest for these birds. Several species of pines, oaks and madroños made up the forest, and beautiful little park-like basins open here and there forming ideal spots for the big Woodpeckers, but we failed to see one. The people united in assuring us that the birds live there every summer and it is probable that they lead a more wandering life during the winter months and sometimes absent themselves from their summer haunts; but it is quite certain that they are not in any sense migratory. We found them in the state of Michoacan, considerably farther south than any previous record, and subsequently visited other parts of their range. While collecting in the pine forest near Patzcuaro, Michoacan, during the summer of 1892, a Mexican soldier brought in an Ivory-bill killed a few miles away, but it was not until later in the season that we had the satisfaction of seeing the bird in life. In the autumn of that year three of us left Patzcuaro on horseback to go back twenty-five miles into the forest to the Indian village of Nahuatzin. After leaving the shore of Lake Patzcuaro our trail led through a beautiful upland country of volcanic origin, overgrown with open pine forest, in which grassy parks opened here and there affording charming vistas. We were riding quietly, at an altitude of about 7000 feet, when the flash of bird-wings was noted in the

sunlight. The next instant my listless attitude had vanished, for a pair of Imperial Ivory-bills swung up and alighted near the top of a large dead pine on the border of an Indian cornfield. We stopped at once and after dismounting had no trouble in walking up within easy gunshot. As the male moved out on a large branch a charge of number five shot started him off in an erratic course and the second barrel brought him whirling to the ground. The female was clinging to the trunk near the top of the tree and at the report of the gun flew away over the cornfields and forest as if leaving the neighborhood. The male was only winged and as we approached threw himself over on his tail, with outspread wings, presenting a warlike front of threatening beak and talons. It was impossible not to admire the courage and defiance shown by the fierce glow of his golden-yellow eyes and upraised flaming crest. After stowing the prize carefully away in a saddle-bag we rode on, but chancing to look back saw the female returning at a height of two or three hundred yards looking for her mate. She passed over the tree from which the male was shot and after making a wide circuit again disappeared in the forest.

Soon after sunset we approached Nahuatzin, a picturesque village of steep-roofed houses, situated in a long mountain valley and inhabited by Tarascan Indians. The houses were almost concealed by fruit trees through which rose long, slender columns of smoke that trailed off slowly in the calm evening air and settled in heavy banks in low parts of the valley.

As the shadows of night fell on the bordering wooded hills we scanned with interest the fading outlines of our new field. One of my companions had been here before and his friends received us with much good will and gave us quarters for the night. The following morning our camp was made on the top of a high hill to the west of Nahuatzin, at the border of a little park in the midst of the pines. From the brow of the hill close by was a free outlook across the valley whence a billowy succession of pine covered hills extended away to the blue distance, broken here and there by dull yellow openings of the grassy parks. The first day in camp, just before sunrise, my curiosity was aroused by a succession of queer, nasal, penny-trumpet-like notes from the summit of a rounded hill near by. The notes were new to me and I waited

impatiently for the return of my assistant with the shot-gun so that I might investigate. The calls continued at short intervals until a little after sunrise and were the only sounds audible in the otherwise silent forest. Suddenly a cannon-like roar reverberated from the hillside above camp. A few minutes later my assistant came down the slope and told me that the curious notes were made by Ivory-bills. His attention had been drawn to them as he was coming in, and climbing the hill he found three of the birds close together on the trunk of a pine tree near the summit. In order to make sure of the lot he put two heavy charges in his gun and creeping up close to the base of the tree fired both barrels at once, with the result that the recoil almost kicked him off the hillside and the birds flew away unscathed uttering cries of alarm. A little later we found them again in the same place and several shots were fired without effect. About nine o'clock five of the birds set out from the hill in straggling succession bound for the open pine forest of a neighboring park-like flat where during the day their odd cries were heard at intervals, now distinctly and again barely audible as they moved about among the trees.

During the next few days this entire party fell victims to our guns, but so long as any were left they showed strange persistence in returning to their haunt on the hill. Just at sunrise each morning the notes were heard and between eight and nine o'clock the birds flew out to their feeding ground among the dead pines on the adjacent flat. On the north slope of the hill, near the summit, were several large, prostrate and partly decayed tree trunks with their upper surfaces chipped and dug into for several inches, evidently by the powerful beaks of these Woodpeckers. The birds were suprisingly easy to stalk, even after being hunted and shot at for several days, but were difficult to secure because they are powerful, hard-muscled creatures possessed of remarkable vitality. They showed considerable attachment to one another and when one was shot the other members of the flock remained scattered about on the trees for a short time calling each other at intervals. Wounded birds fought with savage courage. The handsomely contrasted black, white, and scarlet plumage of the male Ivory-bill, with the bright gleam of his golden-yellow eyes make a fit combination for a habitant of one of Nature's wildest

and most secluded regions. They fly from tree to tree with rather slow, heavy wing strokes similar to those of a Crow, and when about to alight, by an added impulse, glide upward along the trunk in a graceful curve and firmly grasp the bark or smooth wood. After a short pause and a glance around, they ascend the trunk in little runs of from one to three feet, with alternating pauses, usually keeping along the main stem of the tree, but when searching for food sometimes traveling out on the larger branches. At such times they were often seen clinging, back down, to the lower side of the branch, chiseling away with powerful blows. Now and then one 'drums' for amusement upon a resonant branch or trunk after the manner of many smaller Woodpeckers, but the strokes are much louder and slower than those of the other species.

For so powerful a bird their notes are weak, and have the peculiar nasal tone that is characteristic of the notes of Sapsuckers, but with a penetrating quality that renders them distinct for a long distance. I am certain they were frequently heard at a distance of a mile; yet when the birds were nearby they did not sound very loud. When we had secured all the birds near camp another party of five or six was found in the hills a mile or so away, and the Indians told us of other places where they were common.

One old Indian led me to a high point overlooking a great expanse of forested country and pointed out a number of park-like openings where he assured me the birds could be found. On the return trip to Patzcuaro, while passing the locality where our first Ivory-bill was taken, the note of another was heard, and riding into the open woods a short distance we came upon a party of eight or ten. My companion winged a fine old male as it flew over and it came down uttering a loud, harsh squall, half in anger and half in fright. Another bird alarmed by the shot flew to a tree near where I stood and alighted about half way up the trunk. After looking at me for a few moments it flew off through the trees.

In this part of the forest we saw a large hole in a dead tree which was evidently an old nesting site of the Ivory-bills. The hole was about forty feet from the ground, in a large Montezuma

pine from which the bark had fallen, and judging from the fresh color of the wood within it could not have been over a year old. The following year one of my companions, Mr. Winton, returned to this district and learned that the Ivory-bills breed there in February. An Indian boy employed by him managed to secure two eggs, one of which he broke descending the tree and the other was placed inside his shirt for safe keeping. On the way home he started to drive some cattle and while running after them fell and thus destroyed the only eggs of this species ever taken. A nest visited the first of March contained newly hatched young, and in April they had flown. One of the striking characteristics of these birds is their general custom of remaining in family parties during the fall and winter. They apparently have strong local attachments as shown by the persistence with which the party near our camp remained in its accustomed haunts although hunted for several days in succession. During our stay in this district these birds passed the middle of the day roaming through thin parts of the forest or about the borders of grassy parks. They seemed particularly partial to the dead trees along the borders of partly cleared cornfields. In the Nahuatzin district we found them only where the forest was almost entirely made up of Montezuma pine (*Pinus montezumæ*) and did not see them alight on any other tree. Their range in this region appears to be restricted to the rather narrow belt along the top of the main central ridge of the Sierra Madre which lies above an altitude of 7000 feet. This belt is more like a rolling and irregular tableland than the summit of a great mountain chain, and its open pine forest, broken by grassy parks, reminds one strongly of the Mogollon plateau of northern Arizona.

While in the northern part of the Territory of Tepic in 1897, we met a trader returning from a trip to the City of Durango who showed us a roughly made skin of a male Ivory-bill which he had secured in the Sierra Madre of Durango and was taking as a great curiosity to his home in the hot country.

The Imperial Ivory-bill is a bird of the pine clad mountains of the Transition life zone and although various naturalists have looked for it without success in the mountains of southern Arizona, there is still a probability of its occurrence there.

Its range, so far as known at present, extends from Patzcuaro, Michoacan, north to within fifty miles of the Arizona border in northern Chihuahua. This covers parts of the Territory of Tepic and of the States of Michoacan, Jalisco, Zacatecas, Durango and Chihuahua.

DESCRIPTIONS OF SUPPOSED NEW GENERA, SPECIES,
AND SUBSPECIES OF AMERICAN BIRDS.

I. FRINGILLIDÆ.¹

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(By permission of the Secretary of the Smithsonian Institution.)

THE present paper is the first of a series intended for the publication of supposed new forms in advance of the larger work on the birds of North and Middle America upon which the author has been engaged for the past four years, the completion of which must necessarily be long delayed. Only brief diagnoses are here given, detailed descriptions being reserved for the larger work referred to.

Several of the genera included here have usually been placed with the so-called Tanagridæ; but I am fully convinced, after long and careful study, that if it should prove practicable to retain a separate family equivalent, in part, to the usually accepted Tanagridæ, it can only be done by materially restricting its limits. At any rate, it is quite certain that the genera *Pitylus* (restricted to *P. grossus* and *P. fuliginosus*), *Pezopetes*, *Buarremon*, *Arremon*, *Lysurus*, and *Pselliophorus* are true Fringillidæ, and very closely related to such unquestionably fringilline genera as *Cardinalis*, *Pipilo*, *Pyrgisoma*, *Atlapietes*, *Arremonops*, etc. Some doubt is attached to such genera as *Stelgidostomus*, *Heterospingus*, *Mitrospingus*, *Rhodothraupis*, and *Hemithraupis*, which certainly are

[¹An author's edition of 100 copies of this paper was issued May 13, 1898.
—EDD.]

not typically fringilline, at least; but pending a conclusion as to their proper position it is considered best to include them here provisionally.

Genus **Melanospiza.** (Type, *Loxigilla richardsoni* Cory.)

Related to *Euetheia* Reichenbach, but bill relatively much larger and with the subbasal angle of the mandibular tomium produced into a distinct point.

Genus **Brachyspiza.** (Type, *Fringilla capensis* Müller.)

Related to *Melospiza* Baird, but tail shorter, tarsi longer and stouter, and style of coloration very different.

Genus **Myospiza.** (Type, *Fringilla manimbe* Lichtenstein.)

Similar to *Coturniculus* Bonaparte, but tail rounded or double-rounded, with all the rectrices broad and rounded at tips, and tarsus much longer than middle toe with claw.

Genus **Plagiospiza.** (Type, *Aimophila superciliosa* Swainson.)

Similar to *Aimophila* Swainson, but tail shorter than wing instead of longer, and wing much less rounded, the first primary longer than eighth instead of shorter than tenth, and second to sixth primaries longest and nearly equal.

Genus **Incaspiza.** (Type, *Hæmophila pulchra* Sclater.)

Similar to *Aimophila* Swainson, in much rounded wing and proportions of feet, but with tail decidedly shorter than wing, maxilla narrower (vertically) than mandible, maxillary tomium without any convexity in middle portion and style of coloration very different. *Coloration:* Back and scapulars plain chestnut, rest of upper parts plain gray; face black; chest and sides grayish; belly and under tail-coverts white or buffy; lateral rectrices chiefly white; bill yellow.

Genus **Rhynchospiza.** (Type, *Hæmophila stolzmanni* Taczanowski.)

Similar to the shorter tailed, stouter billed species of *Aimophila* in proportions of toes, form of bill, and much rounded wing, but tail much shorter than wing, nearly even, and nostrils very small, circular, nearly

hidden by latero-frontal feathers. *Coloration*: Head and neck gray with two broad stripes of chestnut on pileum and a narrow postocular stripe of the same; back grayish brown streaked with black; lesser wing-coverts dark chestnut; edge of wing yellow; under parts mostly white.

Genus Pselliophorus.¹ (Type, *Tachyphonus tibialis* Lawrence.)

Related to *Buarremon* Bonaparte, but mandibular tomium without distinct subbasal tooth, feathers of forehead and lores stiff and erect, webs of rectrices semi-decomposed terminally, and feathers of tibiae developed into a conspicuous tuft entirely concealing the tibio-tarsal joint.

Genus Lysurus. (Type, *Buarremon crassirostris* Cassin.)

Similar to *Arremon* Vieillot, but nostril broader, more rounded, with superior operculum much less developed; wing much more rounded (first primary very much shorter than secondaries, the second about equal to secondaries or but little longer); tail more rounded, almost graduated, with the rectrices broad, though pointed at the tips, the webs semi-decomposed terminally; middle toe relatively longer, the lateral claw falling much short of base of middle claw. (Includes also *Buarremon castaneiceps* Sclater.)

Genus Serinopsis. (Type, *Fringilla arvensis* Kittlitz.)

Resembling *Sicalis* Boie, but bill relatively shorter and deeper at base, more compressed terminally, with straighter outlines and more distinctly ridged culmen; wing much longer and more pointed and claws relatively longer and more slender.

Genus Heterospingus. (Type, *Tachyphonus rubrifrons* Lawrence.)

Similar to *Tachyphonus* Vieillot, but nasal fossæ densely feathered, concealing the nostrils; tail relatively much shorter, wing more pointed, tarsus shorter (scarcely exceeding middle toe with claw), and sexes alike in color or nearly so in pattern of coloration.

Genus Mitrospingus. (Type, *Tachyphonus cassini* Lawrence.)

Related to *Eucometis* Sclater, but bill much longer (nearly as long as head), nostrils very different, wing more rounded, tarsus relatively longer, claws stronger, occipital feathers very short (instead of the reverse), and style of coloration very different.

¹ From *Ψελλιοφόρος*; *Ψελλιον* = *armilla*.

Genus Rhodothraupis. (Type, *Fringilla celæno* Lichtenstein.)

Similar to *Caryothraustes* Reichenbach, but tail much longer (nearly as long as wing) and decidedly rounded; first primary not longer than eighth instead of longer than seventh; tarsus decidedly longer than middle toe with claw, and sexes different in color, though similar in pattern of coloration.

Genus Hemithraupis. (Type, *Aglaia cyanocephala* Lafresnaye and D'Orbigny.)

Similar to *Tanagra* Linnæus,¹ but tail much longer (equal to length of wing to tip of secondaries), wing more rounded (first primary shorter than seventh instead of longer than sixth), and rictal bristles much stronger.

Genus Stelgidostomus. (Type, *Saltator maxillosus* Cabanis.)

Superficially closely resembling *Saltator* Vieillot, but bill very different, being much shorter and more tumid, with maxillary tomia strongly inflected, the mandibular tomia serrated, especially toward the base, and the inferior surface of the maxilla with a lateral series of sharp, transverse file-like ridges or corrugations.

Aimophila² ruficeps sororia. LAGUNA SPARROW.

Similar to *A. ruficeps* in coloration of upper parts, but chestnut of pileum somewhat lighter or clearer, supraloral line whiter, and supra-auricular stripe lighter and grayer; smaller than *A. ruficeps scottii*, with back, etc., less ashy with chestnut streaks darker and much narrower, and the under parts much more strongly tinged with buff; differing from all the other northern forms of the species in much thicker and relatively shorter bill. Wing, 2.20-2.48 (2.37); tail, 2.40-2.58 (2.49); exposed culmen, 0.45; depth of bill at base, 0.25-0.27 (0.26); tarsus, 0.80-0.81 (0.80); middle toe, 0.55-0.60 (0.58).

¹ The type of *Tanagra* Linnæus is, according to the "process of elimination," *T. episcopus*.

² I am at present unable to discover any characters sufficient to separate *Peucaea* from *Aimophila*, unless the former be restricted to *P. astivalis*, *P. botteri*, and *P. cassini*. *Aimophila ruficeps* is connected with the type (*A. ruficauda*) by such intermediate species as *A. mcleodi*, which Mr. Brewster described as an *Aimophila* and Messrs. Salvin and Godman as a *Peucaea* (*P. megarhyncha*).

Southern portion of Lower California, in mountains (Laguna; Victoria Mountains).

Type, No. 90,063, U. S. Nat. Mus., ♀ ad., Victoria Mts., Lower California, Feb. 9, 1883; L. Belding.

***Aimophila sartorii*. HUATUSCO SPARROW.**

Similar to *A. botterii* but very much darker, the ground color of the upper parts sooty grayish or dark smoke-gray with the darker markings very heavy; under parts less buffy, the chest and sides varying from pale smoky buff to light drab-gray. Length (skins), 5.10-6.10 (5.73); wing, 2.35-2.60 (2.42); tail, 2.25-2.52 (2.42); exposed culmen, 0.48-0.52 (0.50); depth of bill at base, 0.27-0.30 (0.28); tarsus, 0.80-0.87 (0.83); middle toe, 0.62-0.68 (0.64).

Eastern slope of Vera Cruz, Mexico (Huatusco, near Mirador), and south to northern Nicaragua (El Volcan, Chinandego).

Type, No. 44,752, U. S. Nat. Mus., ♀ ad., Huatusco, near Mirador, Vera Cruz, Mexico, July 12; Florentin Sartorius.

This form resembles very closely in coloration "*Ammodromus*" *petenicus* Salvin, but is decidedly larger and the wing less rounded. The relationship is exceedingly close, however, and it would not be surprising should the two prove to be local forms of the same species. *A. petenicus* is certainly not an *Ammodramus*, but, should my view of the impracticability of separating *Peucea* from *Aimophila* prove correct, it should be called *Aimophila petenica*.

Owing to the circumstance that the single Vera Cruz specimen (the type) is in worn plumage, comparison between it and the two Nicaraguan specimens in the Salvin-Godman collection is unsatisfactory. The latter are in fresh plumage, and may be merely winter migrants, though it is very doubtful whether these birds perform more than local migrations.

The Huatusco bird which has been selected as the type is, in part, the *Peucea aestivalis* var. *botterii* of the 'History of North American Birds' (Vol. II, page 38), and, exclusively, the *P. botterii* of the 'Manual of North American Birds' (page 428). The true *P. botterii*, it may be added, is the same species as that treated by American authors generally as *P. mexicana* or *P. arizona*, as I have recently been able to determine by comparison of the types of the three supposed forms.

Atlapetes pileatus dilutus. CHIHUAHUAN PILEATED SPARROW.

Similar to *A. pileatus* (Wagler) but averaging smaller, with smaller and more slender bill, grayer upper parts, and yellow of under parts paler and duller. Wing, 2.45-2.65 (2.53); tail, 2.35-2.60 (2.50); exposed culmen, 0.40-0.47 (0.44); depth of bill at base, 0.25-0.30 (0.28); tarsus, 0.90-0.95 (0.92); middle toe, 0.61-0.65 (0.63).

Northwestern portion of Mexican plateau (Bravo and Jesus Maria, Chihuahua).

Type, No. 99962, U. S. Nat. Mus., ♂ ad., Jesus Maria, Chihuahua, April 25, 1884; R. R. McLeod.

Arremonops venezuelensis. VENEZUELAN STRIPED-CROWNED SPARROW.

Similar to *A. conirostris* (Bonaparte), but decidedly smaller, bill more slender, and color of upper parts of a duller, more brownish, olive-green. Length (skins), 5.85-6.00 (5.92); wing, 2.77-2.83 (2.80); tail, 2.40-2.47 (2.44); exposed culmen, 0.58-0.60 (0.59); depth of bill at base, 0.30; tarsus, 0.99-1.01 (1.00); middle toe, 0.63-0.65 (0.64).

Venezuela (La Guayra; Puerto Cabello; Carupano; Tachira).

Type, No. 119280, U. S. Nat. Mus., Puerto Cabello, Venezuela; received from Count von Berlepsch.

The synonymy of this form is as follows:—

Embernagra conirostris (nec *Arremon conirostris* BONAPARTE), SCLATER & SALVIN, Proc. Zool. Soc. Lond. 1868, 167 (Caripano, Venezuela).

[*Embernagra striaticeps*.] Subsp. d. *Embernagra conirostris* SHARPE, Cat. Birds Brit. Mus. XII, 1888, 763, part (Carupano and Tachira, Venezuela).

Arremonops richmondi. RICHMOND'S SPARROW.

Similar to *A. conirostris* (Bonaparte) but much brighter olive-green above, gray of head much deeper, and chest distinctly ash-gray.

Honduras (Segovia River) to Veragua.

Type, No. 126189, U. S. Nat. Mus., ♂ ad., Greytown, Nicaragua, Feb. 16, 1892; C. W. Richmond.

This is the *Embernagra striaticeps* of authors, but not of Lafresnaye, as I have been able to ascertain by examination of the type specimens of the latter, in the collection of the Boston Society of Natural History. The latter clearly are referable to the Colombian form known as *Embernagra conirostris* (Bonaparte), to which Panama examples in the U. S. National Museum

also unquestionably belong. A new name being therefore required for the Central American bird, I take pleasure in naming it after Dr. C. W. Richmond, Assistant Curator of the Division of Birds, U. S. National Museum, who procured a series of beautifully prepared specimens in Nicaragua.

Cyanocompsa concreta cyanescens. PANAMA BLUE
GROSBEEK.

Similar to *C. concreta* (DuBus) but averaging smaller (the bill especially), the male more decidedly bluish, the adult female and young less rusty brown. Length (skins) 5.60-6.50 (6.00); wing, 2.90-3.28 (3.11); tail, 2.37-2.75 (2.62); culmen, from base, 0.78-0.89 (0.81); depth of bill at base, 0.60-0.70 (0.66); width of mandible at base, 0.49-0.54 (0.51); tarsus, 0.76-0.87 (0.83); middle toe, 0.55-0.62 (0.59).

Colombia (including Isthmus of Panama) to Venezuela and western Ecuador. (Specimens from Veragua, Costa Rica, Nicaragua, and southern Honduras connect the typical Colombian bird with *G. concreta* of southern Mexico, Guatemala, and northern Honduras, the *concreta* type reaching its extreme development in southern Mexico.)

Type, No. 146114, U. S. Nat. Mus., ♂ ad., Panama, 1877; A. Boucard.

This is the *Guiraca cyanoides* of authors, but is not the *Coccothorus cyanoides* of Lafresnaye, as has erroneously been supposed. I have examined the types of the latter, now in the collection of the Boston Society of Natural History. The female type is a young example of *Guiraca cærulea*; but the male type represents a very distinct species, of which I have seen specimens from Venezuela, Guiana, and the lower Amazon Valley (Santarem). *Cyanocompsa cyanoides* (Lafresnaye) is a much more brightly colored bird than *C. concreta cyanescens*, the coloration of the male being far more like that of the smaller South American species, *Cyanocompsa cyanea* (Linnaeus). The female, however, is very differently colored, being of a deep bistre-brownish or sepia hue, very different from the tawny color of *C. cyanea*.

Amphispiza bilineata deserticola. DESERT SPARROW.

Similar to *A. bilineata* (Cassin) but averaging decidedly larger, with upper parts lighter and browner, and the white spot at tip of inner web of lateral tail-feather much smaller. Length (skins), 4.80-5.45 (5.05); wing, 2.45-2.78 (2.58); tail, 2.32-2.69 (2.45); exposed culmen, 0.36-0.42

(0.40); depth of bill at base, 0.22-0.25 (0.24); tarsus, 0.71-0.78 (0.73); middle toe, 0.49-0.55 (0.51); length of white spot on lateral tail-feather, 0.10-0.45 (0.30).

Arid plains from western Texas (west of 103° W. longitude) to coast of southern California (San Diego County, etc.), north to northern Nevada and Utah, south into Chihuahua and Sonora; Lower California?

Type, No. 98884, U. S. Nat. Mus., ♂ ad., Tuscon, Arizona, May 12, 1884; E. W. Nelson.

***Amphispiza belli clementæ.* SAN CLEMENTE SPARROW.**

Exactly like *A. belli* (Cassin) in coloration, but larger and with relatively larger bill. Length (skins), 5.20-5.70 (5.50); wing, 2.45-2.72 (2.61); tail, 2.30-2.68 (2.54); exposed culmen, 0.38-0.41 (0.39); depth of bill at base, 0.22-0.23 (0.22); tarsus, 0.79-0.85 (0.80); middle toe, 0.49-0.53 (0.52).

San Clemente Island, southern California.

Type, No. 117612, U. S. Nat. Mus., ♂ ad., San Clemente Island, California, Jan. 25, 1889; C. H. Townsend.

NOTES ON THE NESTING OF THE FORK-TAILED
PETREL (*OCEANODROMA FURCATA*).

BY JOSEPH MAILLIARD.

AT NINE o'clock on the evening of June 17, 1896, our anchor was dropped at the island of St. Lazaria, a long, narrow rock lying in the mouth of Sitka Bay, Baranoff Island, Alaska. Landing at once, with my two assistants, we found ourselves upon a low bunch of rock between the two higher portions of the island. Here we shot some Glaucous-winged Gulls (*Larus glaucescens*), Violet-green Cormorants (*Phalacrocorax pelagicus robustus*), Black Oyster-catchers (*Hematopus bachmani*), and Tufted Puffins (*Lunda cirrhata*). About ten o'clock we discovered a way of reaching the top of the main portion of the island, and found the summit covered with peat in process of formation, out of which grew a rank sort of coarse grass and salmon-berry bushes, and in some places groves of fir and cedar trees. The highest portion is probably 200 feet above the sea, with perpendicular cliffs almost continuously around

it. As we were following a narrow Indian trail near the top a faint but distinct squeaking was heard directly beneath our feet. It was a foggy, rainy night, and as the light was commencing to fail we had not noticed the small holes which on closer inspection showed themselves under every bush and tuft of grass. Upon falling on our knees to investigate this unusual sound we discovered these holes and at once commenced digging in the soft peat with our fingers. A moment's work unearthed a Petrel, and almost simultaneously my two assistants sang out "I've got a bird." My own catch was a Fork-tailed Petrel (*Oceanodroma furcata*), but one of the men captured a Leach's (*O. leucorhoa*). Being naturally somewhat excited at finding the eggs of the Fork-tailed Petrel we went to work rather wildly and frightened some of the birds from their eggs. As the two species were breeding in the same burrows the result was a feeling of despair about identification. However, we took a few eggs from under the parents, and as by this time it was growing too dark to see very distinctly we returned to the sloop and turned in for two or three hours. My two companions, stretched on the bottom of the boat, were soon sleeping audibly, fatigue having been a stronger factor than their intention to keep watch and watch in case our light rope cable should be cut by the rocky bottom. The uneasy jerking of the little craft and the danger of going ashore if the cable parted prevented me from sleeping.

About twelve o'clock my attention was attracted by the notes of the Petrels on the shore, some hundred and fifty yards distant. It was too dark to see clearly, but there were so many of these birds moving about that it was possible to discern a sort of commotion along the rocks, and I arrived at the conclusion that the birds from the nests were meeting those coming in from the sea to exchange places with them. The twittering noise made on this meeting ground was something prodigious. It does not seem probable that the incubating birds left their nests until their partners came to replace them, but presumably the first ones to leave met and conversed with the later incoming ones. The noise we first heard under our feet was either made by birds getting ready to leave, or, more likely still, due to disagreement between the two species in the burrows.

Mr. J. Grinnell visited this island a day or two later and passed the night upon the summit. He said that it was impossible to keep a fire alight in the middle of the night as the Petrels flew into it in such numbers as to extinguish it. We went ashore again at 3 A. M., but not a Petrel was in sight. Their twittering had ceased about 1.30 or 2 o'clock, as it was getting rather broad daylight by that time. It would be interesting to know in the still higher latitudes, where there is no twilight, at what time this exchange of the duty of incubation takes place.

Sending the men on a tour of investigation around the island, I went at once to work on the Petrels, unfortunately with no implements but fingers. The burrows seemed to run in any and every direction except directly downwards. The area that I worked in was covered with bunch grass and low salmon-berry bushes, the roots of the latter being greatly in the way. The peat was so loose and wet that it was difficult to clearly define the burrows, but it seemed certain that they frequently intersected when on the same level, and also that there were tiers of them on different planes and running diverse ways. I could, however, form no idea of the length of any particular one. Their depth varied from four to eighteen inches from the surface of the ground. The diameter of the burrows was from about $2\frac{1}{2}$ to $3\frac{1}{2}$ inches, but frequently they were hollowed out in the interior to a greater size. The nests were merely small hollows in slightly enlarged portions of the galleries, with sometimes a little dry grass on the bottom, and were placed at irregular distances apart,—frequently an *O. furcata* within a foot of a nest of *O. leucorhoa*, and then again perhaps several of one species in succession at varying intervals. It was difficult to discern much removed material at the entrances to the burrows, the same ones being in all probability used year after year, the excavated earth having in the course of time become assimilated with the surrounding surface. It seemed as if one could dig down and strike burrows anywhere, and in fact I gave up looking for the entrances proper, and simply dug up the peat in any spot that seemed likely to be free from roots. Unless violently disturbed each bird would be found sitting upon its egg, or, perhaps it would back away a few inches. In some instances the bird had been frightened, and leaving its egg had run along

the burrow and disappeared, in some of these cases being found on further excavation huddled up to its next neighbor. There was no difficulty in catching any number of the birds in one's hand, and after selecting all that could be used the balance were thrown into the air when they flew away in a dazed manner as if unused to the light. The eggs of *O. furcata* proved on comparison to be a little larger than those of *O. leucorhoa*, and were more spotted at the large end. While those of the latter were fresh or nearly so, the eggs of *O. furcata* were nearly all too far advanced in incubation to be saved.

Besides the inhabited burrows there were a good many old ones, principally in well-defined areas of a few yards across, that were for some reason unused. The minks, of which there must be a large number on the island, judging from the piles of Petrel's wings found in some spots, may have systematically cleaned out these unused areas; but as the mouths of these burrows looked old and neglected this hypothesis is a doubtful one.

LAND BIRDS OBSERVED IN MID-WINTER ON SANTA CATALINA ISLAND, CALIFORNIA.

BY JOSEPH GRINNELL.

I HAD the good fortune to spend the last eight days of December, 1897, on Santa Catalina Island, which lies about 25 miles off the coast of southern California. My ornithological observations were confined to the east end of the island in the vicinity of Avalon. Catalina Island consists of a range of hills rising 1000 to 3000 feet above the sea and very much resembling in formation some sections of the mainland Coast Range of which system it is evidently a part. These hills are furrowed by innumerable ravines and cañons, and are clothed more or less thickly with low brush and cactus. The shady north slopes generally present a heavy growth of larger bushes, which often reach the size of small trees.

Birds were most numerous in the larger cañons, especially where there was any water. The majority of birds in point of numbers were winter visitants. Out of the 29 species identified, 14 are known to me to be resident on this island. They are: *Callipepla californica vallicola*, *Zenaidura macroura*, *Buteo borealis calurus*, *Haliaeetus leucocephalus*, *Selasphorus alleni*, *Sayornis nigricans*, *Corvus corax sinuatus*, *Carpodacus mexicanus frontalis*, *Pipilo maculatus megalonyx*, *Lanius ludovicianus gambeli*, *Salpinctes obsoletus*, *Helminthophila celata sordida*, *Mimus polyglottos*, and *Thryothorus bewickii spilurus*.

I was surprised not to find several birds which are numerous on San Clemente Island, for Catalina lies almost exactly between that island and the mainland. Song Sparrows and Horned Larks were remarkable by their apparent absence from Catalina, and besides these, the Chipping Sparrow, Meadowlark and Bell's Sparrow were not discovered. Horned Larks and Song Sparrows are also abundant on Santa Barbara Island which lies about 20 miles northwest of Catalina. The following is a briefly annotated list of the birds detected on Santa Catalina Island during my December visit.

***Callipepla californica vallicola*.** VALLEY PARTRIDGE. — Very abundant in the brushy cañons. The 'Quail' is not native on the island, but was originally introduced from the mainland.

***Zenaidura macroura*.** MOURNING DOVE. — I saw several pairs among the hill-tops toward the interior of the island.

***Buteo borealis calurus*.** WESTERN RED-TAIL. — Scarcely a day passed but what two or three of these large Hawks were seen circling among the hills. An immature specimen in very dark plumage was brought in by a local hunter.

***Haliaeetus leucocephalus*.** BALD EAGLE. — Common along the precipitous margins of the island.

***Asio accipitrinus*.** SHORT-EARED OWL. — I examined a newly-mounted specimen in a taxidermist's shop at Avalon; it had been shot about a week before.

***Speotyto cunicularia hypogæa*.** BURROWING OWL. — I saw a single individual on a hill-top in the interior. I was told that this Owl becomes quite numerous at times.

***Ceryle alcyon*.** BELTED KINGFISHER. — Tolerably common along rocky shores.

***Colaptes cafer*.** RED-SHAFTED FLICKER. — Tolerably common, being

usually flushed from the shady sides of the cañons where they dig in the damp turf for insect larvæ.

Calypte anna. ANNA'S HUMMINGBIRD.—An adult female was taken and another seen, in a cañon in the interior.

Selasphorus alleni. ALLEN'S HUMMINGBIRD.—Very abundant about the blossoming eucalyptus trees at Avalon, and in small numbers along the cañons and ravines wherever there were flowers. The Allen's Hummingbird is a resident species on this island, as it is found breeding commonly in the spring months. On the adjacent mainland this species is found only during the migrations, and it seems rather strange that it should be so numerous as a permanent resident only thirty miles distant.

Sayornis saya. SAY'S PHŒBE.—Tolerably common about the hill-tops.

Sayornis nigricans. BLACK PHŒBE.—I saw but three individuals and they were along the steep rocky cliffs near the beaches on each side of Avalon.

Corvus corax sinuatus. AMERICAN RAVEN.—Common.

Carpodacus mexicanus frontalis. HOUSE FINCH.—Very numerous on the hill-sides in the interior of the island. The Linnets were feeding to a large extent on the cactus fruits, and there was scarcely a cactus thicket that did not harbor a flock of these birds.

Spinus psaltria. ARKANSAS GOLDFINCH.—I saw only three pairs, and they were in the immediate vicinity of Avalon.

Zonotrichia leucophrys intermedia. INTERMEDIATE SPARROW.—Very common in brushy ravines.

Zonotrichia coronata. GOLDEN-CROWNED SPARROW.—Tolerably common in thick brush in the cañon back of Avalon.

Melospiza lincolni. LINCOLN'S SPARROW.—I saw an individual on two occasions in a door-yard in Avalon.

Passerella iliaca unalaschensis. TOWNSEND'S SPARROW.—Common in brushy cañon-beds.

Passerella iliaca megarhyncha. THICK-BILLED SPARROW.—Nearly as common as the last, and associated with it. Many specimens of both forms were secured.

Pipilo maculatus megalonyx. SPURRED TOWHEE.—Abundant in brush along dry water-courses. About 40 specimens were secured on Catalina Island. They are readily distinguishable from *P. clementæ*, and yet are slightly different from the mainland form. The bill is longer and proportionately slenderer than in the mainland bird, but in the male the upper and anterior parts are fully as jet black. The 'Catbird' call-note of the Catalina bird is very different in quality from that possessed by the mainland bird. When I first heard it, I was positive that a California Jay was on a distant hill-side, although the Towhee was only a few yards from me.

Lanius ludovicianus gambeli. CALIFORNIA SHRIKE.—I did not see more than five individuals, and only one specimen was secured.

Helminthophila celata sordida. LUTESCENT WARBLER.—Tolerably common but very quiet and secretive. Nearly all the specimens secured had been eating the cactus fruits and their digestive organs and surrounding tissues were colored a bright wine-color. A partial albino specimen was taken.

Dendroica auduboni. AUDUBON'S WARBLER.—Probably the most numerous bird on the island and seen everywhere from the pebbly beaches to the highest hills.

Mimus polyglottos. MOCKINGBIRD.—Common among the cactus patches from the cañon-beds to the hill-tops. Their faces were in many cases brightly stained with the cactus fruit juice.

Salpinctes obsoletus. ROCK WREN.—Tolerably common on the cliffs and steep hill-sides.

Thryothorus bewickii spilurus. VIGORS'S WREN.—Tolerably common in the smaller ravines, but very shy. The 10 specimens secured agree in having the bill quite perceptibly longer than the mainland bird.

Regulus calendula. RUBY-CROWNED KINGLET.—A very few were observed.

Turdus aonalaschkæ. DWARF HERMIT THRUSH.—Tolerably common on the shady hill-sides, and in the deeper cañons. They were feeding on the berries of the California holly.

GEOGRAPHICAL RACES OF *HARPORHYNCHUS* *REDIVIVUS*.

BY JOSEPH GRINNELL.

COMPARISON of a series of Thrashers from northern and central California with one from southern California, as might be expected, discloses two slightly differentiated geographical races. This is another instance of the effect of the moist northerly Pacific coast climate in producing a soft brown coloration, as contrasted with the leaden or ashy shades acquired by birds inhabiting the southern coast region where the rainfall is much less. As the type specimens of this species were obtained in the vicinity of Monterey, the name *redivivus* proper may be restricted to the northern race, while the southern form, which I believe to be sufficiently distinct, will require a new name.

***Harporhynchus redivivus pasadenensis*, new subspecies.**

SOUTHERN CALIFORNIA THRASHER.

Type, ♂ ad., No. 2056, Coll. J. G., Pasadena, California, Feb. 6, 1897. General coloration similar to that of the northern form, but plumage ashier or less distinctly brown. Whole upper parts dark sepia, where in the case of the northern bird there is a well-marked tinge of a brown approximating isabella color; this difference is most noticeable on the top of the head. Lower parts likewise less brightly tinted; pectoral band darker and grayer; throat nearly pure white, this character being quite pronounced.

Measurements.—Average of 12 specimens of *H. redivivus*: wing, 3.96; tail, 5.52; bill from nostril, 1.17; tarsus, 1.39.

Average of 17 specimens of *H. r. pasadenensis*: wing, 3.92; tail, 5.30; bill from nostril, 1.21; tarsus, 1.36.

Nearly all my northern specimens have the throat patch strongly suffused with isabella color. Unfortunately, I have not been able to obtain specimens from Monterey, but birds from adjoining counties exhibit the character of true *redivivus*. Specimens from the Sacramento Valley (Amador County, etc.) show the most extreme brown type of coloration. My series of *pasadenensis* is quite large, but there is remarkably little variation. Badly worn specimens of the two races, however, are scarcely distinguishable.

THE SAN NICOLAS ROCK WREN.

BY JOSEPH GRINNELL.

SAN NICOLAS ISLAND lies between sixty and seventy miles from the nearest point of the southern California mainland, and is the most remote of the Santa Barbara Group. It is seven miles long by three wide, and resembles a huge sand-dune. The yellow shifting sands support but very scant vegetation, and consequently insects are few. Yet, in the spring of 1897, I found Rock Wrens to be quite numerous on most parts of the island, frequent-

ing ravines and the many gullies which cross the mesa at the summit of the island. It is not unreasonable, therefore, that a resident species on this isolated desert should become affected by these peculiar conditions, and prove somewhat different from its mainland counterpart.

***Salpinctes obsoletus pulverius*, new subspecies.**

SAN NICOLAS ROCK WREN.

Type, ♂ ad., in abraded breeding plumage, No. 2615, Coll. J. G., San Nicolas Island, California, May 19, 1897.

Measurements: length, 6.12; wing, 2.80; tail, 2.20; tarsus, .85; culmen, .75; bill from nostril, .58; depth of bill at nostril, .18.

Pattern of coloration similar to that of the mainland *S. obsoletus*, but entire plumage, especially the upper parts, suffused with ochraceous or dust color, almost identical with the tint of the soil on San Nicolas Island.

Unfortunately no San Nicolas Rock Wrens in fresh fall plumage are available, and this yellowish coloration may be due in part to the bleaching and abrasion of the plumage, but the character is, nevertheless, quite apparent when compared with mainland specimens in correspondingly worn plumage. This is probably an instance of protective coloration, as foxes were found on the island, and small birds must form a good share of their prey.

The best character of *pulverius*, however, is the notably greater size of the bill and feet, the measurements of which approach closely to those of *S. guadeloupensis*. The appended table shows the comparative measurements of specimens from the mainland and interlying islands, as well as the eight adult specimens of *pulverius* obtained on San Nicolas Island during the middle of May, 1897. The specimens from San Clemente and Santa Barbara Islands are intermediate in characters.

Quite a large series of Rock Wrens from Western North America are before me, and very little variation is to be found. Southern California specimens are indistinguishable from those taken in the Rocky Mountain region and eastward into Nebraska, where, I believe, Say's type was taken.

I am indebted to the National Museum officers for the loan of a series of *Salpinctes*.

MEASUREMENTS.

	Length.	Wing.	Tail.	Tarsus.	Culmen.	Bill from Nostril.	Depth of bill at Nostril.
Average of 8 specimens <i>S. o. pulverius</i> from San Nicolas Island.	6.00	2.75	2.17	.85	.72	.57	.17
Average of 2 specimens (intermediate) from San Clemente Island.	5.93	2.71	2.09	.80	.69	.57	.16
Average of 4 specimens (intermediate) from Santa Barbara Island.	6.05	2.77	2.24	.79	.67	.54	.15
Average of 19 specimens <i>S. obsoletus</i> from the adjacent mainland of Southern California.	5.86	2.75	2.18	.78	.67	.54	.15

A MONTH WITH THE GOLDFINCHES.

BY MARY EMILY BRUCE.

THE nesting season is nearly over and the air is full of the voices of young birds before the Goldfinches begin to build. In the leisurely golden time of the year, when the fields are yellow with grain and the roadsides gay with golden-rod, the dainty pair, in love with the summer, the sunshine, and each other, plan their home. True to their careless, happy natures they neither hurry nor overwork. A suitable place is chosen, the nest is built, the eggs are laid, and the little dame sits content in the sun, while her mate fills the air with music, as high over woods and fields he takes his undulating flight in search of food. To watch a Goldfinch's home is a privilege that brightens the whole summer, and one would like to write their story with a pen dipped in sunshine.

It was late in July before I reached the farmhouse among the hills of Vermont where I was to spend my vacation, and I found the orchards near the house already full of young birds. Baby

Sapsuckers flopped about in the apple trees, young Vireos were followed here and there by anxious mothers, Catbirds uttered notes of warning by the roadsides, and infant Flycatchers and Thrushes regarded me with large inquiring eyes. A pair of belated Robins, nervous and overworked, were looking after their young ones, who were still in the nest, but for the most part family cares were over, and my only hope of watching the home life of the birds was to find a Goldfinch's nest.

In vain I searched the orchard near the house. Goldfinches flashed in and out among the branches, and sang of summer joys over my head, but they guarded well the secret of their homes. When I had nearly given up in despair, chance favored me, and I happened upon the object of my search in a maple tree in front of a neighboring farmhouse. Blessings never come singly, and just as I was rejoicing in this treasure trove the little daughter of the house pointed out another nest in the orchard. A third nest, also in a maple tree, was discovered a few days later, but this was already full of half fledged birds, and both maple tree dwellings were too high in the branches to be easily watched.

Nothing could be better suited to my purpose than the home in the orchard. The Goldfinches had chosen a tiny pear tree quite close to the house, and the nest was barely four feet from the ground. There was something very charming in the confidence they had shown their human neighbors, and the pair won my heart from the first by their gentle, trustful ways. It was a satisfaction to watch a nest for once where I was not treated like a robber and murderer. I could draw my chair quite near to the little pear tree, and the mother bird would look at me without a shadow of alarm in her bright eyes.

It was marvelous to see how quickly she recognized the voice of her mate in the Goldfinch chorus about her. Her neighbors in the maple tree might come and go, and she never stirred a feather, but a sudden quivering of the wings and a soft twittering response would announce his approach long before I could hear his voice, and as his song became audible to me, louder and more joyful grew her note of welcome. He would alight in a neighboring tree, speak to me first in a mild, questioning tone, like a pet canary talking to his mistress, and then fly down to the nest and feed his

mate. After the dainty meal was finished they would talk together for a moment before he left her for another flight into the big sunshiny world. Life in this miniature home was very sweet and harmonious, and the golden bird in the tiny tree with its treasure of a nest made a charming picture.

For the next four weeks I visited the orchard daily. They were quiet hours I spent there, but there was no lack of entertainment. For music the Field Sparrows sang to me their simple, plaintive songs, and from far up on the hills I could sometimes hear the chant of the Hermit Thrush. A pair of Chipping Sparrows in a neighboring apple tree were bringing up their only child with quite as much solicitude as if they were burdened with a large family. They were a striking contrast to the serene and happy Goldfinches, but, plain little brown folks as they were, I enjoyed watching them. Sometimes young Warblers, looking strangely unlike their parents, visited the orchard, or a bevy of Crows from a maple grove near by, disturbed by a passing Hawk, startled me out of my day dreams. I wondered if the little Goldfinch had as many resources as I, or if the hours seemed long to her. Perhaps she too dreamed day dreams and listened to the music of nature. She seldom left the nest, though I occasionally startled her off by some sudden movement, when she reproached me for my carelessness in the sweetest of voices.

When I first looked into the nest there were six eggs, white, with faintest tinge of blue, and pretty enough to satisfy any bird mother, but my little girl friend had told me that there were but two eggs laid when the bird began to sit, and I was curious to know whether there would not be a marked difference in the age of the young ones. After two week's patient waiting the little mother and I were rewarded by finding among the pretty eggs a very ugly birdling. On my afternoon visit there were three little birds, the next day four, and on the day following I counted five heads. By this time the mother did not sit constantly on the nest, but cunningly tucked the remaining egg under the little birds and went on short excursions into the country. Whether the young ones did not do their duty, or whether it was another instance of the survival of the fittest I cannot tell, but when the oldest nestling was five days old I again counted heads

and there were only four. The youngest child and the sixth egg had both disappeared, and I decided that in the struggle for existence the older birds must have had too great an advantage in point of time. As it was, the nest seemed hardly large enough, and the four had a comical fashion of lying with their long necks stretched out and their heads hanging over the edge, their eyes half closed and their mouths wide open as if gasping for air. Certainly uglier birdlings never gladdened the hearts of deluded parents.

For the first week they showed little intelligence. At the noise of a passing wagon four mouths would open as quickly as at the sound of the mother's voice, and they greeted me in the same ravenous manner. I responded by trying to feed them with crushed plantain seed, but though they opened their bills to receive the morsel, the experiment was not very successful. It would take the eye of faith to see in these atoms of birdhood the potential grace and beauty of a mature Goldfinch, and I sometimes fancied that the mother herself had doubts about them, for she would stand pensively on the edge of the nest in her visits to the home tree and look unutterable things. The little birds were fed very slowly and thoroughly about once an hour, sometimes by the father, sometimes by the mother. Possibly the parents came oftener during my absence, but from the time the sitting was over I saw them less and less frequently, though I was sometimes greeted on my arrival by a note of inquiry from the tree tops. I hope I proved myself worthy of the confidence placed in me. I did not sit too near the nest, and by moving quietly and speaking softly I tried, in my poor human fashion, to become a fit associate for my gentle friends. Though so seldom fed, the little ones seemed to thrive on fresh air and sunshine. Stretching matches and other gymnastics were practised daily, pretty feathers gradually appeared, and by the time they were ten days old they were bonny birdlings resembling their mother. From her they had inherited gentle manners and soft voices, for it was at that early age that they began to talk. They no longer mistook me for a parent bird, but seemed fond of me, trying to swallow the bits of hard boiled egg I offered them, and showing no fear when I took them out of the nest.

When they were nearly two weeks old I visited the orchard

every morning before breakfast, expecting each day to find my birdlings flown, but it was not until the sixteenth day that the event occurred for which I had been waiting.

On this morning I was more grieved than surprised to find only two little birds left in the nest. I spent the entire morning in the orchard, waiting to see the remaining birdlings take flight. It seemed to be the policy of the parents to induce them to come out for something to eat, for they were not once fed during this time. I offered them morsels of egg, but they paid little heed to me. They were restless, and I saw that the old home and old friends had lost all charm for them. Suddenly while I watched, one of the two birdlings scrambled onto the edge of the nest, balanced himself for a moment, and then flew straight into the nearest apple tree. From this vantage ground he looked down into the tiny pear tree home that had once seemed all the world to him, and called back to his little brother that he had found a larger and greener world than that. The baby in the nest seemed half inclined to follow him, but at each attempt after much fluttering of the wings he would slip back into the old place. Presently the mother came with a morsel of food for the brave little bird in the tree, but no attention was paid to the pleading cry of his lazy brother, and very soon the venturesome young one found the use of his wings so pleasant and the food she offered him so tempting that he followed her across the orchard into the fields beyond.

On my afternoon visit the poor little coward was still in the nest, apparently very hungry and teasing incessantly. He may have thought that he was forgotten, — and I confess that I had fears of this myself, — when late in the afternoon, brighter than a gleam of sunshine, doubtless, to the waiting bird, came the father to the nest. Only this encouragement was needed, the little fellow was not to be left alone again; in a moment he was standing on a tiny twig above the nest, there was another moment of balancing and indecision, and then taking heart he too flew across to the friendly apple tree. He was rewarded by the instant appearance of his mother who had doubtless waited for this evidence of courage on the part of her youngest darling. She first gave him a hearty meal, and then flew from tree to tree towards the fields beyond. My birdling followed her in pretty, undulating, Goldfinch fashion, and I was left alone in the orchard.

OUR SMALL EASTERN SHRIKES.

BY WILLIAM PALMER.

THREE Shrikes are universally understood to occur in North America east of the Plains. The Northern Shrike (*Lanius borealis*), a winter visitant in our eastern States; the Loggerhead (*L. ludovicianus*), which is considered a fairly common bird over most of the region between Maine and Florida and Ohio and Illinois to Louisiana; and the White-rumped (*L. l. excubitoroides*), which is supposed to inhabit Canada, Michigan, and westwards.

An examination of considerable material, 176 specimens, compels me to relegate *excubitoroides* to the Plains region west of the immediate Mississippi wooded drainage area; *ludovicianus* to the South Atlantic and Gulf coasts, and Florida, and to recognize a new form as occupying much of the remaining region of the East.

Historical Synopsis.

The name *Lanius ludovicianus* was first given by Brisson¹ to a bird from the region then known as Louisiana. On his description Linnaeus² based his binomial name composed of the same words.

Vieillot³ describes two Shrikes, one *Lanius borealis*, the other *L. ardosiacus*, whose habitat he gives as Georgia, Florida, and Louisiana.

Wilson knew but two Shrikes, one the northern, which he called *L. excubitor*, thinking it identical with the European bird, and his *Lanius carolinensis*⁴ which he found on his visit to South Carolina and Georgia. Of this he says: "This species inhabits the rice plantations of Carolina and Georgia, where it is protected for its usefulness in destroying mice." We may be sure that Wilson

¹ Orn., II, 1760, 162, pl. 15, fig. 2.

² S. N., I, 1766, 134.

³ Ois. Am. Sept., I, 1807, 81.

⁴ Am. Orn., III, 1811, 57, pl. 22, fig. 5.

either knew nothing of a small Shrike occurring north of the Carolinas or that he confused it with the Northern.

Bonaparte seems to have had no special acquaintance with the Loggerhead. In his 'Observations on the Nomenclature of Wilson's Ornithology,' he states,¹ "34. § *L. carolinensis*, vol. iii., p. 57. This species is peculiar to the southern parts of North America. Vieillot's name of *ardosiaceus* has the priority, and will, therefore, be adopted." He then gives "*L. ludovicianus*? Linn" as a synonym of "*L. ardosiaceus* Vieill." In later publications he adopts *Lanius ludovicianus* as the correct name for the Loggerhead.

Swainson evidently knew nothing by practical experience of the Loggerhead Shrike. Apparently he had no specimens, but used the descriptions of his predecessors in distinguishing his *Lanius excubitoroides* from *L. ludovicianus*.²

Audubon's knowledge of these birds was superior to all others but he fell far short of the real facts. He tells us, "The Loggerhead Shrike is partially migratory in Carolina. A few may be found through the winter; but the number is ten times greater in summer."³ He also quotes Wilson as above. Audubon appears never to have suspected that his bird bred in Louisiana, for he says, "Seldom reaching farther eastward than North Carolina, or farther inland than the State of Mississippi, in which latter, as well as in Louisiana, it appears only during the winter months. Its chief residence may, therefore, be looked upon as the Floridas, Georgia, and the Carolinas."⁴ He also says: "This bird appears in Louisiana only at intervals, and seldom remains more than a few weeks in December or January."⁵ The original of Audubon's plate was procured by him in Louisiana.

Professor Baird gave the range of the Loggerhead as "South Atlantic and Gulf States," and of *Lanius excubitoroides* as "Missouri plains and fur countries to Pacific coast. Eastward into Wisconsin, Illinois, and Michigan (?)."⁶ This is the first

¹ Journ. Acad. Nat. Sci. Phila., III, V.

² Fauna Foreali Americana, II, 1831, 115, pl. 34.

³ Birds of America, Vol. IV, 1842, p. 137.

⁴ *L. c.*, p. 135.

⁵ *L. c.*, 136.

⁶ B. N. A., 1358, 325, 326.

appearance of this last name for a bird east of the Mississippi River, a practice only too readily followed afterwards, for its use extended to Maine and Canada and even to the Carolinas. Professor Baird had five specimens of *ludovicianus* from Georgia and an imperfect series from Wisconsin, Illinois and Michigan, besides a number from the West, and necessarily considered his southern specimens as distinct from the others.

Dr. Coues, with all the work of his predecessors before him and his South Carolina and western experiences, readily fell into the view of considering the Upper Mississippi birds as intermediate between *L. ludovicianus* and *L. excubitoroides*, a conclusion which has since remained unchanged.¹ His work had the effect of broadening the ornithological fieldwork of numerous observers who based their identifications primarily upon his results. Some peculiar Shrike literature was thus encouraged, the effects of which will be noted later.

The only Shrikes mentioned by Dr. Gadow² that are probably from the eastern States are two, a "juv. sk." from Louisiana, and an "ad. sk." from "N. America," which may be anything. All the others mentioned are from Mexico and Western America, yet all are placed under one name *L. ludovicianus*, though it is stated that Canadian examples "are very distinct from the extreme southern form, which is confined to the southern States and Mexico (*L. ludovicianus*)."

We now come to a phase of literature due to our increasing knowledge of the range of these birds, for, as the taste for ornithology increased through the middle and northeastern States, so accounts of these birds became numerous. At first they were ascribed to the larger species *L. borealis*, for we find records of this bird breeding in the New England States and Pennsylvania, which were afterwards changed to *ludovicianus* or *excubitoroides*. Then notices of the capture of *L. excubitoroides* became common, though in many cases a wrong identification was later admitted and change made to *ludovicianus*. But the records increased,

¹ Key to N. A. Birds, 1872, 125; 1890, 338; B. N. W., 1874, 103; B. C. V., 1878, 563.

² Cat. Birds Brit. Mus., Vol. VIII, 1883, 246.

both names being variously used, even in one case, both of them, for the birds of a mated pair! until now it is considered that except in Michigan, Wisconsin, Minnesota and Canada, *ludovicianus* is the only form found.

Dr. Wheaton¹ gives *Lanius ludovicianus* as, a "Common summer resident in Middle, less common in Northern and Southern Ohio. . . . First ascertained to occur in Ohio by myself in 1874, a female specimen, taken May 31, 1873, on which my note in Coues' Birds of the Northwest was in part based, proving a nearly typical specimen of this variety. Her mate was an equally well marked individual of var. *excubitoroides*." On page 311, he says of this latter, "Rare in southern and middle Ohio, probably more common in northern Ohio. Summer resident from March to September. Breeds." On page 312 he says of *excubitoroides*: "Thus it appears that this variety has extended its range eastward from the Mississippi Valley mainly along the basin of the Great Lakes."

Raymond W. Smith,² speaking of the birds of Warren County, Ohio, gives *L. ludovicianus* as "uncommon summer resident," and of *L. l. excubitoroides* as "resident, probably breeds." He also says: "The Shrikes of this locality are just on the border line between the Loggerhead and the White-rumps, and in many cases it is almost impossible to distinguish the variety."

The A. O. U. Check-List of 1886 gave the range of *ludovicianus* as "Florida, the Carolinas, and the Gulf States east of Texas." In the list of 1895 this became "Eastern United States, west to the Plains; north to northern New England. Breeds from the Gulf States to Virginia and casually north, on the Atlantic Coast to southern New Jersey; in the interior, northward to the Great Lakes, and through western Pennsylvania and New York to New Hampshire, Vermont, and Maine."

It would seem that, generally, the test of whether a particular bird belonged to either *ludovicianus* or *excubitoroides*, depended on the presence of dark, or white (= pale) upper tail-coverts, the

¹ Birds of Ohio, 1880, 309.

² p. 233.

³ Journ. Am. Soc. N. Hist., 1891, 122.

universal ignorance of the real *excubitoroides* being sufficient to determine the issue. Also, identifications of *excubitoroides* from east of the Plains have been based on breeding birds, usually, sometimes on winter specimens taken at the most northern part of their winter habitat. In no instance do these seem to have been compared with typical specimens of the form whose name they took.

Taxonomic Differences.

Lanius ludovicianus ludovicianus Linn.

LOGGERHEAD SHRIKE.

Subspecific characters.—Adult ♂: Above dark slaty; beneath almost immaculate white; bill large and stout, swollen toward tip; hook large and coarse, gently curved downwards; tail longer than wing.

Adult ♀: Similar, but smaller. Type locality, "Louisiana."

Lanius ludovicianus migrans, *subsp. nov.*

MIGRANT SHRIKE.

Subspecific characters.—Adult ♂: Above bluish gray; beneath pale slaty; throat white; bill smaller, regularly tapering; hook delicate and sharply bent downwards; tail shorter than wing. Type, No. 163077, ♂, Kingston, Ontario, April 4, 1898; Dr. C. K. Clarke.

Adult ♀: Duller, especially beneath, and smaller.

Distribution.

From middle Louisiana eastward along the Gulf Coast and its indentations; throughout Florida, and eastward into North Carolina. Extending from this range to an indeterminate distance up the valleys, though generally confined below the 100-foot contour line.¹ Non-migratory except at its more northern and its higher habitat . . . *ludovicianus*.

¹ It would seem desirable that the life distribution of forms should be considered in relation to contour lines, altitude and the influences of the various kinds of forest distribution being the principal factors affecting them. The relative quiescent humidity of swamps and dense forests with their very slight interactions resulting from rapid general climate changes, plus the minimum amount of sunlight, produces results different from the dryer and more exposed elevations or depressions. The amount of sunlight, the character of the food, and the influences of a limited habitat seem more important in their results than degrees of temperature. Increase or decrease of the radiating powers of the ground surface destroys or drives out forms and necessarily influence those that remain, or replace them, and this radiating power is determined by influences other than mere temperature.

From Maine, Vermont, and Canada to Minnesota; southwards into North Carolina and the Ohio Valley to the Plains. Absent in winter from its more northern and higher habitats and migrating in the autumn toward the Atlantic Coast and into the Carolinas, Tennessee, and lower Mississippi valley. Breeding almost entirely above the 500-foot contour in the valleys, casually up to about 2000 feet, and to within about 50 miles of the coast in Maine. From Canada and the edges of the plains intergrading into *excubitoroides* *migrans*.

From the above it will be seen that *ludovicianus* is a resident of the seaward edge of the coastal plain, ranging up the valleys above the 100-foot contour in suitable places, especially where civilization has prepared a way. On the other hand, *migrans* is a resident of the Transition Zone between the Carolinian and the Canadian, affected in some places by the opening up of suitable breeding places by the agency of man.

In Maine the Migrant Shrike does not seem to be uncommon. Mr. O. W. Knight has recently recorded it from numerous localities¹ and informs me that he can always find them in summer. He is sure of its breeding at Hampden, five miles south of Bangor and about 55 miles from the sea. Most of the records I have are breeding records, but the bird does not seem to winter. In New Hampshire and Vermont the bird is locally distributed in suitable places, nearly all of the ten localities I have being of breeding birds. Except one breeding record in northwestern Massachusetts² the records from that State and from Connecticut, Rhode Island and New Jersey are either of winter visitants or of migrants, though Mr. Stone mentions its probable breeding in southern New Jersey,³ but this may be the southern form. In New York it breeds in most of the middle and western counties, being a migrant or winter resident in the Hudson Valley and on Long Island. In Pennsylvania it breeds in the counties bordering the western boundary, but it is only a migrant or winter visitant in the rest of the State, apparently. I do not know of its breeding in Maryland, though Mr. Kirkwood informs me that in the manu-

¹ Bull. Univ. Maine, 1897.

² Auk, 1887, 180; Am. Nat. 1887, 90.

³ Birds E. Penn. and N. J., 1894, 125.

scripts left by the late E. A. Small there is a note of its occurrence in Washington County in summer. In Virginia it is a winter visitor and migrant over the whole tidewater region to the foothills of the Blue Ridge. In the valley of Virginia it is a summer resident, wintering in mild winters in the southern portion. It breeds commonly in Nelson County (W. R. Robinson¹); in Warren County (G. S. Miller, Jr.²); in Rappahanock County (Prof. F. E. L. Beal³), and in Fauquier County (R. Ridgway⁴). In North Carolina it is confined in summer to the western portion along the foothills. It is entirely absent in summer at Raleigh, though a winter visitor there (Brimley Bros.⁴), but is a common breeder further west at Statesville (R. B. McLaughlin⁴). It doubtless occurs further south, both as a breeder and winter resident, but I have no sure instances. From Montreal (Wintle⁴) to Ottawa (Prof. Macoun²), County Perth (Kells), and Kingston, Ontario (Dr. C. K. Clark⁴), it occurs through most of Michigan and Wisconsin to Minneapolis, thence to the Ohio River, almost every record being a breeding one. It has been recorded only as a migrant from Kentucky (Fulton, Warren, and Nelson Counties). I have seen three specimens from Tennessee (Roane County and Nashville), all winter birds. West of the Mississippi it undoubtedly occurs in suitable places to the edge of the Plains, but records are very few and uncertain.

The Loggerhead is abundant throughout Florida and along the Atlantic Coast into North Carolina, and probably into Virginia on the shores of the Chesapeake region. Robinson's record for Chesterfield County⁵ may include this bird for the summer resident. It occurs along the coasts of Western Florida and of Alabama, extending up the valleys of the latter State for a considerable distance, probably above the 100-foot contour, Wilcox County (Rev. H. E. Wheeler⁶); Shelby County (C. F. Witherby⁶); and Butler and Antanga Counties (Dr. D. L. Wilkinson⁶). I have

¹ In letter and specimen.

² In person,

³ In person, and Smith, *Pastime*, Oct., 1884, 27.

⁴ In letters.

⁵ Auk, 1889, 195.

⁶ In letters.

seen several specimens from Hale County, including young. Dr. Wilkinson took a set of eggs, March 29, 1888, in Gastonbury, Wilcox County, a set of three, and another of four eggs in Hale County, March 30, 1889.¹ In Mississippi and Louisiana it is common along the coast and probably over the greater parts of these States in suitable places along the watercourses, and for some distance up the Mississippi Valley. The Oxford record² is almost certainly this bird. It is replaced by another form in Texas.

General Differences.

In *migrans* the wing is longer than the tail, due to its migratory habit; in *ludovicianus* the tail is longest, thus indicating its fixed habitat. In consequence the third primary feather of the former is usually the longest, or is equal to the fourth; in the latter the fourth is nearly always the longest. The forehead of *ludovicianus* is dark like the top of head, in *migrans* it is nearly always paler. In the southern bird the underparts are usually almost immaculate, in the other the slaty of the sides of the breast extends across, especially in the breeding plumage. Usually a faint trace of reddish is perceptible on the breast of *ludovicianus*, but is stronger in *migrans*, especially in the females and immature. Signs of immaturity disappear quickly in *ludovicianus*, they soon assume adult plumage; the reverse is true of *migrans*, the duller plumage, browner primaries, and paler edgings on the wing-coverts lasting longer. Larger areas of white marking occur on individuals of both forms and are indicative of greater age but some immature are precocious.

From *L. l. excubitoroides*,³ *migrans* is distinguishable by its darker, duller plumage, especially beneath, by being stouter and longer, and by its larger bill, tarsi and feet.

In *ludovicianus* the upper tail-coverts are almost invariably similar to the back in color, paleness when occurring being due to

¹ In letters.

² Ragsdale, Auk, 1889, 224.

³ To be treated in another paper.

bleaching and wearing. In *migrans* the male usually has pale upper tail-coverts, bleaching in the breeding season to a dull, dirty whitish. The stronger, duller colors of the females rarely bleach as much. At the end of the breeding season the plumage usually presents a very ragged, bleached condition with all the colors very much faded. The great difference, usually, between the purer colors of the males and the darker, duller colors of the females, the difference in size and the consequent varying amount of bleaching of the sexes is responsible for the identification, so common, of *excubitoroides* as an eastern bird. The plumage is always paler when fresh but soon darkens, especially in *migrans*, where the contrast is greater. In this also the contrast between the white throat and the darkish breast is nearly always evident, and exceedingly rare in the southern bird.

Intermediates and Variations.

Specimens from Greensboro, Alabama, in the Tombigbee River Valley, are referable to *ludovicianus*, but represent a tendency toward *migrans*, the bill being slenderer and more hooked. A specimen from Chester, South Carolina, is similar, as are also two in Mr. Kohn's collection from Covington, Louisiana. These last are evidently migrants from a more northern locality, as breeding birds from the same region in Mr. Kohn's collection are typical *ludovicianus*. In Dr. A. K. Fisher's collection are six specimens from St. Helena Island, near Beaufort, South Carolina. These also represent a variation in the direction of *migrans*. Though having the large bill, the hook is more curved and longer.

Certain specimens of *migrans* from Southern Illinois have stouter bills than usual, as have also the birds breeding about Minneapolis, Minnesota. These evidently represent groups of individuals with restricted habitats in the valleys of large rivers. Their having the fourth quill longer than the third, or equal to it, would indicate that their migratory range is not extensive.

Measurements.

Measurements were made of nearly all the specimens grouped by States. These show that the birds taken at the most north-

ern parts of the range of *migrans* are the largest. The averages include all the specimens measured, no weeding out of the immature or smallest being done. The single measurements will show the usual range of size in fully adult birds.

Averages of *ludovicianus*.

Of 24 males, wings, 3.77; tails, 3.89; culmens, .60; tarsi, 1.07.

Of 13 females, wings, 3.69; tails, 3.79; culmens, .58; tarsi, 1.05.

Averages of *migrans*.

Of 35 males, wings, 3.88; tails, 3.78; culmens, .54; tarsi, 1.07.

Of 24 females, wings, 3.78; tails, 3.66; culmens, .53; tarsi, 1.08.

General Considerations.

Shrikes are inhabitants of open, wooded, scrubby country. The mixed prairie, savanna, open pine woods, and hummock lands of the southern coasts afford a congenial habitat for the Loggerhead, which is an abundant bird. Similar conditions but with a greatly different vegetation, prevail about the prairies of the middle States and the farms and open country of the summer habitat of the Migrant Shrike. From the distribution here given it will be noticed that there is a considerable hiatus¹ between the breeding ranges of these two forms. This is evidently caused by the fact that the interval between the 100-foot and the 500-foot contours is a part of the great coastal plain forest region of the south, a region unsuited to Shrikes, and in which they do not breed. It is possible that, as civilization reached the prairies of Indiana and Illinois, a passage eastward was afforded by which these birds extended their range eastward into Maine and south-

¹ See, Ragsdale, Auk, 1889, 224-226, though his facts were mixed, no hiatus really occurring between *migrans* and *excubitoroides*, but between the former and *ludovicianus*.

MEASUREMENTS OF ADULT *Lanius ludovicianus ludovicianus*.

No.	Locality.	Sex.	Date.	Collector.	Wing.	Tail.	Culmen.	Tarsus.	
	Covington, La.	♂	Nov. 13, 1895	G. Kohn	3.83	4.00	.58	1.09	Kohn Collection
150,002	Kissimmee R. Fla.	♂	Mar. 2, 1895	R. Ridgway	3.75	4.05	.61	1.05	U.S.N.M. "
3,825	" "	♂	Feb. 28, 1895	W. Palmer	3.80	4.15	.67	1.10	Palmer "
137,854	Riceboro, Ga.	♂	Ap. 8, 1893	J. A. Loring	3.90	3.97	.60	1.12	Dept. Agri. "
137,853	Georgetown, S. C.	♂	Ap. 10, 1895	C. P. Brimley	3.75	3.89	.60	1.08	" " "
	Covington, La.	♀	Oct. 26, 1889	G. Kohn	3.66	3.90	.57	1.06	Kohn "
150,006	Lake Kissimmee, Fla.	♀	Feb. 26, 1895	R. Ridgway	3.67	3.88	.60	1.04	U.S.N.M. "
150,005	Kissimmee R. Fla.	♀	Mar. 3, 1895	" "	3.78	3.97	.60	1.04	" " "
150,130	" "	♀	Mar. 3, 1895	W. Palmer	3.70	3.87	.63	1.04	" " "
3,050	Liberty Co., Ga.	♀	1846	W. L. Jones	3.77	3.90	.60	1.11	" " "

MEASUREMENTS OF ADULT *Lanius ludovicianus migrans*.

No.	Locality.	Sex.	Date.	Collector.	Wing.	Tail.	Culmen.	Tarsus.	
1,810	Minneapolis, Minn.	♂	May 9, 1881	F. Benner	3.99	3.85	.54	1.09	Minn. State, Collection
163,077	Kingston, Ont.	♂	Ap. 4, 1898	C. K. Clarke	3.90	3.79	.54	1.08	U. S. N. M.
2,544	Ballston, Va.	♂	Ap. 1, 1890	W. Palmer	3.90	3.73	.53	1.10	Palmer
	Wingina, "	♂	May 2, 1898	W. R. Robinson	3.75	3.60	.57	1.10	"
123,019	Syracuse, N. Y.	♂	Ap. 3, 1887	M. M. Green	3.98	3.90	.53	1.12	U. S. N. M.
163,076	Falls Church, Va.	♂	Nov. 27, 1890	W. Palmer	3.87	3.78	.59	1.10	"
163,078	Kingston, Ont.	♀	Ap. 6, 1898	C. K. Clarke	3.82	3.70	.52	1.10	"
159,707	Middlebury, Vt.	♀	Ap. , 1897	A. D. Mead	3.80	3.78	.50	1.10	"
103,853	Rockwood, Tenn.	♀	Mar. 18, 1885	W. H. Fox	3.84	3.74	.53	1.03	"
123,018	College Park, Md.	♀	Nov. 27, 1890	C. W. Richmond	3.82	3.60	.50	1.06	"
81,314	Brander, Va.	♀	Dec. 6, 1880	G. B. Harrison	3.80	3.76	.53	1.08	"
83,212	Wabash Co., Ill.	♀	Ap. 17, 1878	R. Ridgway	3.88	3.77	.57	1.10	"

ward into the Carolinas along the foothills of the mountains, the early highways of the pioneers. The many records of the abundance now and former rarity of Shrikes may be thus explained, but the facts are far too few and too recent to be of much value in determining such a question. Dr. Ralph informs me that Shrikes have penetrated into the Adirondack region by means of the roads leading to settlements located in the dense woods at an elevation of 2,600 feet.

The two birds are perfectly distinct and readily separable, but may meet in the lower Mississippi Valley, and in places where civilization has changed the former natural conditions, dense forests giving way to open country, old fields, bushes, etc.

The Molt of the Adult.

Adults begin to change in July or August, or later, according to summer habitat. Some begin to change before migrating, while in others it is delayed until they reach their winter habitat. An adult male that I took on Smith's Island, Virginia, in fall migration on August 30, 1895, evidently began to molt before it started, but the effects of the journey prevented its completion, though it permitted the new feathers to attain full growth. The four middle feathers of the tail are nearly full grown, while the outer four on each side are the old ones. In the wings the tertials are full grown and new, as are also the inner primaries, but the outer primaries and most of the secondaries are old. Very few growing feathers are to be seen. Another taken in Alexandria County, Virginia; October 3, 1889, is in full molt on the wings; the tertials and inner primaries and some of the secondaries are full grown and the others are of various lengths, the two outer old primaries being still in place. The tail-feathers are in various stages, the outer being the shortest, about an inch, while the central are full grown. The body plumage is nearly complete. Another taken in Maryland, November 1, is further advanced. Specimens taken in January, February, and April show some growing feathers on the throat, and this seems to be the extent of the spring change in the males. I have seen no molting females.

Molt of the Immature.

When the flight feathers of the young are full grown new body feathers begin to grow on the back and breast. Those of the back are dullish slaty, faintly barred subterminally with blackish. Beneath they are whitish, tinged with slaty on the sides and very slightly with brownish on the underbody except on the throat, each feather being subterminally crossed with a faint crescent of dusky. As the change continues much of this barring and the dull colors wear off, leaving the white and slaty purer. The last of the nestling plumage to disappear on the body is on the pileum, upper neck, and rump. The progress of the change of the flight feathers I have been unable to determine, specimens being too few. The nestling wing-coverts are retained for a long time and it is probable that, like the flight feathers, they do not change until the next summer's molt. An immature female taken November 11, in King George County, Virginia, has not changed its flight feathers, but many pinfeathers are concealed under the breast feathers and molting is evident on the throat. A series of ten specimens collected in the vicinity of Washington, D. C., by Mr. James Gaut, during the last week of March of this year, are all immature birds. Except two they are in various stages of molting change, both males and females, new feathers appearing on the throat and breast, on the face, and, in a few specimens, on the head and back. The wing-coverts still have the immature light patches at their tips though variously worn. No change in the flight feathers appears, and the primaries are usually considerably weathered.

SPECIMENS EXAMINED.

L. l. migrans.

Maine	1	Ohio	2
Vermont	2	Indiana	1
New York	12	Illinois	20
Pennsylvania	3	Wisconsin	1
Maryland	7	Minnesota	17
District of Columbia	9	Tennessee	3
Virginia	22	Canada	3
North Carolina	1		
Total			104

L. ludovicianus.

South Carolina	11
Georgia	10
Florida	38
Alabama	3
Mississippi	2
Louisiana	8
Total	72
Total of both forms	176

I am under special obligations to many friends: To Mr. Ridgway for the use of the National Museum series; to Dr. T. S. Roberts, of Minneapolis, who sent me the entire Minnesota State collection; to Dr. A. K. Fisher for the use of many specimens; to Mr. Gustave Kohn, of New Orleans; Mr. Ora W. Knight, of Maine; Dr. C. K. Clarke, of Kingston, Ontario; Mr. W. R. Robinson, of Wingina, Virginia, and Mr. James Gaut, of Washington, D. C.

DESCRIPTIONS OF TWO NEW BIRDS FROM THE
SANTA BARBARA ISLANDS, SOUTHERN
CALIFORNIA.

BY EDGAR A. MEARNS.

***Carpodacus clementis*, new species.**

SAN CLEMENTE HOUSE FINCH.

Carpodacus frontalis TOWNSEND, Proc. U. S. Nat. Mus., XIII, No. 799, 1890, pp. 139 (Santa Barbara Island, California), 140 (San Clemente and Santa Rosa Islands, California).

Carpodacus mexicanus frontalis GRINNELL, Rep. on the Birds of Santa Barbara, San Nicolas and San Clemente Islands, Publication No. I of the Pasadena Academy of Sciences, August, 1897, pp. 6 (Santa Barbara Island, California), 10 (San Nicolas Island) 16 and 17 (San Clemente Island.)

Type from San Clemente Island, California, adult male, No. 134,784, U. S. National Museum. Collected by the author, August 25, 1894.

(Original number, 11,345.) In somewhat worn and faded breeding plumage.

Diagnosis.—Similar to *Carpodacus mexicanus frontalis* (Say), but with larger legs and feet and heavier coloration. The striping of the under surface is much broader than in typical specimens of *frontalis* from the eastern base of the Rocky Mountains. The wings are shorter, the tail perhaps a trifle longer, and the bill much larger and more convex above. It is, in fact, intermediate between the form of *frontalis* inhabiting the neighboring mainland of California and *Carpodacus mcgregori* Anthony,¹ from San Benito Island, about twenty miles west of Cerros (or Cedros) Island, Lower California, which latter (*C. mcgregori*) is but another step towards *Carpodacus amplus* Ridgway of Guadalupe Island.

C. clementis requires no comparison with typical *C. mexicanus* or with the subspecies *ruberrimus* from the peninsula of Lower California. The form *rhodocolpus*, of the tableland of southwestern Mexico, is quite similar in coloration, but much larger, with a much smaller and differently shaped bill.

Measurements.—Length, 162 mm.; alar expanse, 250; wing, 80; tail, 65; chord of culmen, 13; height of bill, 9; width of maxilla, 8.8; width of mandible, 9; tarsus, 19; middle toe and claw, 20.5.

Remarks.—This House Finch was obtained by Mr. Charles H. Townsend, in 1888 and 1889, on San Clemente and Santa Barbara Islands. In August, 1894, Mr. Anthony and myself obtained a good series of them on San Clemente; and, in 1897, Mr. Joseph Grinnell collected specimens on Santa Barbara, San Nicolas, and San Clemente. There are other specimens in the Smithsonian collection, gathered by Drs. Palmer, Henshaw, Cooper, and others from Santa Catalina, Santa Rosa, San Miguel, and Santa Cruz Islands of the Santa Barbara group.

Mr. Grinnell has published (l. c. pp. 16, 17, etc.) the following important notices of this bird: "The most abundant bird of San Clemente Island. Common everywhere, but most numerous in the deep gorges, whose walls are broken by dark caverns and festooned with cactus. In such places, especially in the vicinity of the water 'tanks,' the linnets fairly swarmed, and their full, rollicking songs reverberated incessantly. Their food appeared to be mainly composed of the fleshy cactus fruits, of which there

¹ Auk, XIV, April 1897, p. 165.

was certainly an abundant supply. The nests are built either in cactus, or in niches in the roofs and walls of the caverns. In the latter places the nests vary much in bulk, being fitted to the cavities in which they are built. A large cavity is nearly filled with a mass of fine grasses, weed stems and wool, with only a narrow aperture left at the top. Nests in cactus are built in the center of a clump of spiny stems, from one to three feet above the ground. These can seldom be reached except by breaking down the cactus. They are more compact than those in the rocks, but made of the same materials. Two to five eggs form a full set. They are similar to those of the mainland bird except in size, being decidedly larger. A fresh set taken March 30, measure, $.84 \times .60$ [inch], $.80 \times .63$, $.82 \times .62$, $.80 \times .63$. A partially incubated set of five taken March 31, measure, $.80 \times .56$, $.80 \times .59$, $.82 \times .57$, $.85 \times .56$, $.86 \times .58$. The nesting season begins early, as nearly-fledged young were noted on March 28. On June 5, incubated eggs were taken. The House Finches on San Clemente Island average larger and brighter colored than those of the mainland. This case well illustrates the tendency of the insular birds to acquire larger proportions of the bill or feet. In this genus, the extremes are reached further south in *C. mcgregori* and *C. amplus*. The following are the average measurements of the bills of a series each of the San Clemente and mainland House Finches:

	Gonys.	Culmen.	Depth of bill at base.	Width of upper mandible.
San Clemente Is.....	.32	.43	.35	.30
Pasadena.....	.29	.40	.33	.28

"Forty-seven specimens of the House Finch were obtained on this island.

On Santa Barbara Island, Mr. Grinnell found it "common on the eastern part of the island among the patches of cholla cactus, the fruit of which the linnets were eating. Juveniles were plentiful. A nest was found on the side of a ravine, May 17; it was

built between the leaves [joints] of a cactus about eighteen inches above the ground, and composed entirely of fine dry grass-blades. It contained four badly-incubated eggs, three of which measure: $.76 \times .56$, $.75 \times .59$, $.83 \times .59$. Fourteen House Finches were taken on this island."

On San Nicolas Island, Mr. Grinnell notes that "only about twenty were seen during our stay on the island, so this bird is by no means common. Fully fledged juveniles were noted, and a nest found May 25. It was in a hole in the sand-stone bluff above the beach, but could not be reached. The female was seen to leave it on several occasions. Four specimens of the House Finch were taken."

***Lanius ludovicianus anthonyi*, new subspecies.**

ISLAND SHRIKE.

Lanius ludovicianus gambeli GRINNELL, Rep. on the Birds of Santa Barbara, San Nicolas, and San Clemente Islands, Publication No. I of the Pasadena Academy of Sciences, August, 1897, pp. 19, 20. (San Clemente Island.)

Type from Santa Cruz Island, California. Adult female, No. —, U. S. National Museum. Collected by Mr. R. H. Beck, May 6, 1897. (Original number, 131.)

Adult. — Upper surface of head and body, dark slate-gray, paler — but usually not whitish — on the scapulars and upper tail-coverts, and darkest on the head, which has the faintest trace of a hoary line behind the black rictus, extending above the eye. Wings and tail black and white, the former gray and white below; white areas on wings and tail much more restricted than in the other forms of the *Lanius ludovicianus* group. The white on the upper surface of the wing is confined to the extreme base of the primaries and the extreme tips of the secondaries. The scapulars are edged externally with light gray — not white. Under surface of wing mostly gray, but white along the bend of the wing and across the base of the quills. Tail-feathers all black at base, tipped with white, with white on terminal two-thirds of outer web of lateral feathers. The terminal white on middle pair of rectrices is confined to a narrow edging which soon disappears with wear. The under surface of body is gray, palest mesially, and becoming white on throat and crissum. Iris brown. Bill plumbeous black. Feet black.

Young in first plumage. — Pattern similar to that of adult, but with head and body everywhere vermiculated with dusky and pale fulvous, except on the chin, which is white. Wings and tail with the light areas

increased in size and tinged with clay color; tips of middle rectrices and greater wing-coverts distinctly ferruginous. Bill brownish instead of plumbeous black. Feet and claws grayish instead of jet black. (No. 135, female, collected by Mr. R. H. Beck, on Santa Cruz Island, California, May 6, 1897. Length, 8 inches; alar expanse, 12.)

An older female (No. 134,781, U. S. National Museum) taken by the author, on San Clemente Island, August 27, 1894, was acquiring the adult plumage at the date of capture. The new feathers indicate a very dark coloration, though the upper tail-coverts are white as in *L. l. gambeli*, and its measurements are up to the average.

Measurements.—Average of 10 adults (4 males and 6 females): length, 224 mm.; alar expanse, 313; wing, 95; tail, 102; chord of culmen, 16.1; height of bill, 8.8; tarsus, 27.8; middle toe and claw, 24.

Comparisons.—Some individuals have no trace of a hoary frontal area. The slate-gray of the upper surface varies somewhat in intensity, being plain slate-gray in some, and dark brownish slate in others. In one or two specimens the white at the base of primaries can scarcely be detected, while in others it forms a distinct patch. In a few individuals the scapulars and upper tail-coverts are bordered with pale gray, almost whitish, and in others these parts are almost uniform with the back. A few (probably youngish) adults have brown vermiculations on the breast.

This Shrike is naturally to be compared with *Lanius ludovicianus gambeli* Ridgway, the form common on the adjacent coast of California, but differs in being very much darker as well as smaller. It is, in fact, darker than the darkest eastern specimens of *L. ludovicianus*.¹ It was next compared with *Lanius robustus* Baird, supposed to have come from California; but, as Mr. Ridgway has stated (Auk, XIV, 323), the type of that species is wholly

¹ Mr. Robert Ridgway, in a letter dated May 6, 1898, writes me as follows: "The type of *L. l. anthonyi* is a much darker and less brownish gray above than that of *L. l. gambeli*; has the under parts more decidedly grayish laterally and lacks the brownish wash so conspicuous in all typical specimens of *gambeli*; also has less white on wing and tail, though the latter character is quite variable. The type of *gambeli*, furthermore, has white upper tail-coverts, as do most examples of that form, as does also the young San Clemente specimen collected by you. The latter agrees otherwise with the Santa Cruz bird.

"One specimen of a series from Pasadena agrees in every respect with the bird from Santa Cruz Island, and therefore it seems the island bird occasionally straggles to the mainland."

different from any of the American Shrikes, and is apparently closely related to *L. algeriensis*.

Remarks.—The Santa Barbara Island Shrike appears to be fairly common on San Clemente and Santa Cruz Islands of this group; but all who have seen it regard it as one of the wildest of birds. On his visits to San Clemente, in 1888 and 1889, Mr. Townsend was unable to obtain a specimen. In 1894, Mr. Anthony and myself procured a single one—with difficulty, although Shrikes were seen daily. At night, when we went out to shoot bats, Shrikes would dash about us, uttering loud, harsh screams, different from the voices of any Shrikes I have heard elsewhere. In the daytime they never permitted us to come within range of them.

Mr. Joseph Grinnell carefully explored Santa Barbara and San Nicolas islands, in the spring of 1897, without finding this species; but, on San Clemente Island, made the following observation:¹ "This bird was without question the shyest and hardest to be secured of any on the island. Indeed it was as shy as any hawk I ever saw. It was tolerably common; that is, two or three could be generally seen during an hour's walk. There was a pair in the neighborhood of the windmill where we were camping, and nearly every morning a little after daybreak the male would perch either on the windmill or on the topmost twig of a brush pile on the opposite side of the ravine, and utter its defiant shrike notes. The rustle of the tent door or the click of a gun lock, however, was sufficient to send him up over the ridge, not to appear again for hours. On April 2, I found a nest and succeeded, after lying in ambush for a long time, in securing the female bird. The nest was in a small bush growing out from the side of a cañon, and was composed mostly of sheep wool, with an admixture of weed stems and grasses. Five slightly incubated eggs constituted the set. They are not different from eggs of true *L. l. gambeli* of the mainland, and measure: .97 × .72 [inch], .96 × .72, .95 × .71, .95 × .73, .96 × .72. During our last visit, Mr. Horace Gaylord secured another adult female and a juvenile, and I took another juvenile, making four specimens in all obtained.² This Shrike is

¹ Publication I, Pasadena Academy of Sciences, August, 1897, pp. 19, 20.

² Mr. Grinnell kindly placed these specimens at my disposal.

not exactly referable to *L. l. gambeli*, but appears to be nearer that than either of the other U. S. forms."

On Santa Cruz Island, May 6 to 11, 1897, Mr. R. H. Beck collected nine adult Shrikes and one young of the year, which were generously placed in my hands for description. These birds are marked as parents, respectively, of sets of 5, 5, 4, and 2 eggs. In forwarding these Shrikes, Mr. Beck writes: "They were the wildest land birds I ever saw by far."

YOUNG PLUMAGES OF MEXICAN BIRDS.

BY RICHARD C. MCGREGOR.

Pipilo carmani Lawrence. SOCORRO TOWHEE.

This Towhee was the most abundant land bird on Socorro Island and in contrast to its mainland relatives it was not shy. Its general habits and notes are quite similiar to those of the Spurred Towhee.

But one young bird was taken and it is nearly adult.

No. 1289, ♀ juv., coll. R. C. McG., Socorro Island, Mexico, May 13, 1897. Plumage much as in the adult. Black throat and chin patch wanting; tawny patches on sides pale, indistinct, and small; feathers of other lower parts dirty white with long, dark, central spots; tertials and feathers of mantle edged with tawny. White spot of tail on outer feather only 9.5 mm. long.

Ammodramus sanctorum Coues. SAN BENITO SPARROW.

The nest and eggs of the San Benito Sparrow have been described in the 'Osprey,' II, 42. It remains only to describe the young plumage. The youngest birds have no markings on the lower parts (*z.* Brewster, B. N. O. C., IV, 36) but the breast streaks soon appear. The youngest bird which I have is here described.

No. 1058, ♀ juv., coll. R. C. McG., San Benito Island, Lower California, March 30, 1897. Upper parts like adult in general looks, but somewhat lighter and less olivaceous; feathers of head and neck broccoli brown

with small dark centres; feathers of scapulars and interscapulars centered by clove brown with creamy margins. Lower parts pure white, except traces of faint spots across breast and on flanks; wings and tail resembling those of adult plumage; tertials widely bordered with cinnamon.

Carpodacus mcgregori *Anthony.* MCGREGOR'S FINCH.

We found examples of *C. mcgregori* distributed over the two large Benitos, but on account of their extreme shyness they were difficult to obtain. We were at the islands too late to collect eggs, but I secured three young birds about ready to leave the nest. The parents had constructed their nest about two feet above the ground in a century plant (*Agave*). It was made after the fashion of *C. frontalis*, of a miscellaneous lot of bark, twigs, and fibre. The three young are of different sizes, of which the smallest is here described.

No. 1041, ♂ nestling, coll. R. C. McG., San Benito Island, Lower California, March 29, 1897. The young plumage differs in coloration but little from that of the adult female. Upper parts heavily marked with clove brown, edges and tips of feathers cinnamon; lower parts streaked with clove and cinnamon; tertials and rectrices broadly edged and tipped with wood brown.

DESCRIPTION OF A NEW *AMMODRAMUS* FROM
LOWER CALIFORNIA.

BY RICHARD C. MCGREGOR.

Ammodramus halophilus,¹ sp. nov.

LAGOON SPARROW.

Sp. char.—Most closely related to *A. rostratus guttatus*, but "uniformly larger and much darker; upper parts decidedly olivaceous instead of olive grayish."²

¹ ἅλς, salt of the sea; φιλέω, to love.

² From letter of Mr. R. Ridgway, May 12, 1898.

Type, ad. ♂, No. 1001, coll. R. C. McG., Abreojos Point, Lower California, April 19, 1897. Dorsal surface olivaceous; feathers of scapulars, inter-scapulars, occiput, and crown with clove brown centres. A line of chrome yellow extending from nostril over eye as in *A. bryanti*. Forehead and side of head, including auriculars and malar region, tinged with yellow; throat white; feathers of breast with a wash of yellow, centres with deltoid clove brow spots; markings of sides and flanks lighter and more cuneate, edged with wood brown; wings and tail near sepia, edges lighter.

Wing, 68.5 mm.; tail, 55.4 mm.; tarsus, 20.5 mm.; culmen, 13.2 mm.; depth of bill at base, 7 mm.

Hab. Salt marshes in the vicinity of Abreojos Point, Lower California.

Mr. Ridgway has kindly compared my series of Abreojos Point birds with the two examples of *A. guttatus* in the National Museum. He has sent me the following table of average measurements:

	Wing.	Tail.	Exposed culmen.	Depth of bill at base.	Tarsus.	Middle toe.
<i>A. halophilus.</i>	2.63	1.92	0.51	0.26	0.84	0.63
<i>A. guttatus.</i>	2.525	1.875	0.44	0.23	0.825	0.605

This Sparrow was found in a salt marsh about five miles long by half a mile wide. The common amphibious plant known as glasswort (*Salicornia ambigua*) covers the moist ground. The entire marsh is cut by tide creeks, which empty into a salt lake or pond lagoon. As this marsh is surrounded by ocean on one side and hot desert on the others, it is probable that *A. halophilus* is confined to this region.

We stopped at Abreojos Point on April 19, when I secured sixteen Lagoon Sparrows, together with a nest and three eggs. Individuals were very abundant, but rather shy, keeping at such long range that my auxiliary barrel was useless. Most of the birds were in perfect spring plumage.

On June 17 we made a second landing at Abreojos, and although we expected to secure young birds not one was taken by any of the party. The adults were in worn plumage, and in the oviducts of several females we found eggs on which the shell was formed.

The three eggs collected April 19, 1897, measure, respectively, $.79 \times .58$; $.80 \times .58$; $.78 \times .58$. The ground color is very faint bluish-white, — lighter than in *A. sanctorum*, — heavily marked all over with large blotches of raw umber and smaller spots of lilac; these markings much heavier than in *sanctorum*. A few hairlike lines of blackish run over small end of one egg and about its small diameter. Nest larger than that of San Benito Island species, made of salt grass and lined with fine shreds of grass and a few feathers of *Larus*.

The setting parent was flushed from this nest while I was about fifteen feet distant, and became very uneasy in voice and action. A careful search revealed the nest, sixteen inches from the ground, in a tall bunch of glasswort, the top of which was bent over and in to form a covering. The eggs were concealed from a top view, and entrance to the nest was possible from one side only. The taking of incubated eggs at this date, and of laying females in June, shows that two broods are raised in a year.

GENERAL NOTES.

The Pacific Kittiwake (*Rissa tridactyla pollicaris*) in Lower California. — On March 17, 1897, I shot a fully adult Pacific Kittiwake, at San Geronimo Island, Lower California, about 200 miles south of the United States boundary line, thus extending the known range of that species to Mexican waters.

For the past three winters I have found the Kittiwakes of regular, though not common occurrence, off San Diego, California, and about the Coronado Islands. — A. W. ANTHONY, *Portland, Oregon*.

Capture of the Short-tailed Albatross on the Coast of Southern California. — The Zoölogical Department of Stanford University, California, has been recently presented with a fine specimen in the flesh of *Diomedea albatrus*.

It was taken at San Pedro, Los Angeles Co., Cal., on April 3, 1898, by Mr. Cloudsley Rutler, who shipped it to the Museum of the Department.

This bird being of rather uncommon occurrence on our coast here, I send this notice of its capture. — ROBT. B. McLAIN, *Stanford University, Cal.*

Wilson's Phalarope (*Steganopus tricolor*) at Ocean City, N. J.—To the best of my knowledge the published records of Wilson's Phalarope on the New Jersey coast are limited to two specimens recorded by Dr. C. C. Abbott, as taken at Deal Beach, Monmouth Co. (Birds of New Jersey, in Cooke's Geol. of N. J., 1868). I was never able to trace up these specimens, and the many evident errors in the list in which they are mentioned, naturally casts some doubt on the validity of the record. It is with much pleasure, therefore, that I am able to place on record the capture of a fine adult female of this species by Mr. Gilbert H. Moore, at Ocean City, N. J., May 19, 1898. The bird was in company with a flock of the smaller shore birds when shot.

Mr. Moore has presented the specimen to the local collection of the Academy of Natural Sciences of Philadelphia.—WITMER STONE, *Acad. Nat. Science, Philadelphia, Pa.*

Unusual Nesting Site of Kingbird.—The following may be of some interest to the readers of 'The Auk.' It is certainly unique in my experience. There is a fence post within 50 feet of the Shady Hill Station, Bedford, Mass., and within 35 feet of the railroad, and immediately beside a road, over which men are travelling back and forth all day long, from the office and packing sheds of the Shady Hill Nursery. This post was made of an abandoned railroad tie, whose end had been somewhat hollowed by decay; and in this hollow, in the summer of 1896, a pair of Kingbirds (*Tyrannus tyrannus*) built their nest and raised four young.

One would imagine, judging from the usual characteristics of the Kingbirds, that this pair might have been in constant trouble; but Messrs. A. H. Kirkland, of the Massachusetts State Board of Agriculture, and E. L. Beard, President of the Shady Hill Nursery, to whom I am indebted for this information, seem to be under the impression that, all things considered, they got on very well. The top of the post was only about four feet above the ground, and being immediately beside the road, was, of course, a matter of some interest to the passers-by; but as orders had been issued by Mr. Beard to his numerous workmen, not to have the nest disturbed, the old ones were able to bring them up.

I have no date except that of June 9, 1896, given me by Mr. Kirkland, at which time, he writes me, the nest "contained four young."

Mr. Beard is responsible for the information that on days of extreme heat, the old birds could often be seen standing over their young, and with vibrating wings, sheltering and cooling them.—FRED H. KENNARD, —*Boston, Mass.*

Early Arrival of the Kingbird at Cambridge, Mass.—I saw a Kingbird Saturday, April 16, in my yard. I suppose it is a very unusual date for the arrival of *Tyrannus tyrannus*. It has been seen there eleven other days; from the 23d to the 29th of April it was cold and rainy with north-east winds during which the bird was not seen.

I suppose it is the same Kingbird which, with another, nests near by.—
THOMAS B. BERGEN, *Cambridge, Mass.*

Habits of the Blue Jay.—It may be of interest to the readers of 'The Auk' to learn that I can add, what is to me, a new bird to the list of those making their nests in or about buildings. We have a pair of Blue Jays (*Cyanocitta cristata*) in Brookline, Mass., that have this year built their nest in a most conspicuous place, between the stems of a Wistaria vine and the capitol of a pillar, supporting a piazza roof. This piazza is in almost daily use, and the path leading immediately beside it is also used constantly. At the time of building, and even on June 3, when I saw the nest full of young ones, there were no leaves in the immediate vicinity to hide the nest, thus leaving it in a very conspicuous position.

We all know that certain birds change their habits in accordance with the march of civilization, and I was not very much surprised a few years ago, when I knew of a Blue Jay building its nest in a maple tree, immediately beside our town hall, in the heart of the town; but I was surprised at the above incident, and thought that it might be of interest to others.
—FRED H. KENNARD, *Boston, Mass.*

Probable Polygamy of the Great-tailed Grackle (*Quiscalus macrourus*).
—As evidence bearing upon the supposed polygamy of the Great-tailed Grackle, some observations made at Orizaba, Mexico, in March, 1897, seem worthy of record. This species is an abundant bird in many Mexican cities, finding in the plazas or parks suitable feeding and breeding grounds. In the small *Zocalo* or public gardens in the heart of the City of Orizaba, it happened that only one tree, a densely foliated conifer, was available for nesting sites, and as an apparent result the gardens were inhabited by only one family of Grackles. I watched these birds for some time on March 15 and 16, seeing ten or twelve females, but only one male. The former were building; and on one occasion I saw at least six different females bring nesting materials into the coniferous tree at intervals. This tree contained several nests; how many it was not possible to determine, from the path at its base, and its isolation, in connection with the facts I have mentioned, lead me to believe that it constituted the harem of the male who generally perched in an adjoining araucaria, assuming the ridiculously conscious pose so characteristic of this species.—FRANK M. CHAPMAN, *American Museum of Natural History, New York City.*

McKay's Snowflake (*Plectrophenax hyperboreus*) at Bethel, Alaska.—Two specimens of this rare bird were recently sent me from Bethel, ninety miles up the Kuskokwin River, in the western part of Alaska. This is probably the farthest inland at which the bird has yet been found. The specimens, both females, in full winter plumage, were taken Jan. 4, 1898.—WITMER STONE, *Acad. Nat. Sciences, Philadelphia, Pa.*

Notes on the Black Seaside Finch (*Ammodramus nigrescens*).—Doubtless no bird breeding in North America has a briefer history than has the Black Seaside Finch. Discovered in 1872 by Mr. C. J. Maynard at Salt Lake, near Titusville, Florida, and in the marshes of Merritt's Island and south of Dummitt's Grove on the opposite side of the Indian River, it has apparently been met with by no other ornithologist, and the sum of our knowledge concerning this interesting species is contained in Mr. Maynard's 'Birds of Eastern North America.'

In March, 1889, I looked for *Ammodramus nigrescens* very carefully on the evidently favorable marshes near 'Oak Lodge' on the east peninsula of Indian River, some fifty miles south of the point where Mr. Maynard found it, but without success.

Returning to the Indian River in March, 1898, I determined to continue the search for this bird and securing a small sloop sailed from Titusville on March 2, for the mouth of Dummitt's Creek. Two days were passed at this point and *Ammodramus nigrescens* was found to be a very common inhabitant of the adjoining marshes. Heavy rains prevented me from spending more than five hours in the marshes where, nevertheless, under the most unfavorable conditions seventeen specimens were secured, evidencing the abundance of the bird.

The marshes here are covered with well-defined areas of a low branching, matted grass, and a tall, single-stalked reedy grass, while along the shores of the river, creek, and marsh ponds there is a fringe of bushy sedge (*Borrichia frutescens*). The Finches were found in the tall grass and in the sedge. They were not in song and the sexual organs of the specimens secured exhibited but little signs of enlargement, showing that the breeding season was not yet at hand.

Savanna and Swamp Sparrows were also common in these marshes. The paler color and darting, more extended flight of the former at once distinguished them from *nigrescens*, but the Swamp Sparrows were not so easily identified. One soon learned, however, to recognize *nigrescens* by its darker color and by its flight, which was shorter and more hesitating than that of the Swamp Sparrow.

Like the Seaside Finch (*Ammodramus maritimus*), *nigrescens* appears to possess considerable curiosity and could often be made to mount to the grass-tops by 'squeaking.'

Mr. Maynard states that the birds were doubtless breeding in the latter part of April and that he believes them to be migratory, wintering, probably, at some more southern point.

Their abundance, and the fact that they have been found at no other locality, in connection with their occurrence in numbers so long before the breeding season, would tend to disprove this theory, and in my opinion *Ammodramus nigrescens* will be found to be a permanent resident species.
—FRANK M. CHAPMAN, *American Museum of Natural History, New York City.*

Nesting Instincts of Swallows.—As supplementing Mr. Brewster's record of the premature exhibition of the nest-building and procreative instincts of Swallows (see Auk, XV, April, 1898, p. 194), I may add some observations made on Tree Swallows (*Tachycineta bicolor*), at Leonia, N. J., during August and September, 1897. The extensive salt marshes in which myriads of these birds roost in July, August, and September, are here crossed by a road over which I passed almost daily and rarely without seeing in the road, one or more flocks of Tree Swallows, varying in size from eight or ten to several hundred birds. Without exception, as far as I observed, and I studied them very closely at short range, these birds were in the immature plumage of birds of the year. By far the larger number seemed to have no special object in alighting in the road, they did not move about as though searching for food, indeed for the most part were practically motionless, but occasionally a pair would copulate, as described by Mr. Brewster, and more often a bird would pick up a bit of dried grass and fly up into the air with it, or sometimes it was carried fifty yards or more and dropped from the air; at others the bird would carry it to the telegraph wires bordering the road and drop it after perching a moment.

Additional evidence of inherited knowledge was apparently given by many Tree Swallows which were often seen hovering about a pile driven in a creek which traversed these meadows. I at first supposed these birds to be feeding on insects which presumably had alighted on the pile, but the number of birds, often a dozen or more were seen about the pile, and the persistency with which they remained there, forced me to conclude that in a wholly unreasoning way they were looking for a nesting site.—FRANK M. CHAPMAN, *American Museum of Natural History, New York City.*

Notes on Generic Names of Certain Swallows.—In the raid on nomenclature made a few years ago Dr. L. Stejneger seems to have been peculiarly unfortunate. I have not yet trailed him anywhere without finding that either he did not go far enough in the right direction, or else he went in the wrong direction. The A. O. U. is to be commiserated in unwittingly adopting sundry changes Dr. Stejneger proposed and sought to impose on nomenclature. For example, he undertook to upset the established names *Hirundo* and *Cotile* by substituting *Chelidon* for the former, and *Clivicola* for the latter, after Forster, 1817. It appears from Sharpe's introduction to the Monograph of *Hirundinidæ*, p. xxxv, that *Hirundo* Linn. was characterized by Schæffer, Elem. Orn. 1774, with *H. rustica* as type. If Dr. Sharpe's method of determining the type of a genus be not at variance with A. O. U. canons, this operation of Schæffer's throws out Forster's later attempt to transpose *Hirundo* and *Chelidon*, and we may happily revert to the *status quo ante bellum*. Again, Dr. Sharpe, p. xlv, shows that *Riparia* Forster, 1817, has that sort of priority over *Clivicola* Forster, 1817, which results from previous

pagination, and I believe we recognize that myth officially; if so, the name of the Bank Swallow becomes the tautonym *Riparia riparia*, or else *R. europæa*, or else *R. cinerea*. It is but justice to Dr. Stejneger to say that he was aware of this (Pr. Nat. Mus. V, 1882, p. 32), only he "preferred to accept the name *Clivicola*," though the reason for his preference is obviously a futile one by our rules. It is also due him to add, that he only "supposed" his generic synonymy of Swallows to be correct (*ibid.* p. 31). But neither supposition nor preference has any place in the A. O. U. Code. I can suppose a good many things that are not canonized in the code, and certainly prefer some things that are not canonized. For example, I "prefer" *Riparia* to *Clivicola*, and I "suppose" Dr. Stejneger wrong about *Hirundo*. The case thus raised by Dr. Sharpe should come up for consideration at the next meeting of the Union.—ELLIOTT COUES, *Washington, D. C.*

Accidental Death of a Hooded Warbler (*Sylvania mitrata*).—On May 27, 1898, while wandering along a roadway in the vicinity of Great Timber and Beaver Swamp, Cape May County, New Jersey, in company with Dr. William E. Hughes, a male Hooded Warbler attracted our attention by its uneasiness.

While searching the surroundings for its nest, the Doctor discovered a female Hooded Warbler suspended by a horse hair tightly looped around the lower part of the neck, it having slipped up underneath the feathers, and the other end was tangled among some small twigs and briars, where it no doubt was caught while the bird was carrying the material to line her nest with. She was hanging about two feet above the ground with her head dropped back exposing her throat, the feathers of which were parted by the action of heavy rains of the past few days. The condition of the bird was apparently fresh, and no nests of this species were found containing more than one egg at this time.—J. HARRIS REED, *Beverly, N. J.*

Notes on the Nesting of Palmer's Thrasher at El Plomo, Sonora, Mexico.—Palmer's Thrasher (*Harporhynchus curvirostris palmeri*), is one of the most common birds in this region (100 miles southwest of Tucson, Arizona); they may be seen in pairs throughout the year, and seem to remain around the old nest all winter, using it for a roost. The nesting site seems to be in any convenient place. In flat country anywhere, but in hilly country generally at the foot of a hill, seldom over quarter way up on a hill or mountain, unless on the bank of some small arroyo.

Some pairs begin building the latter part of February. The new nest is generally placed near the old one, often in the same cactus, and sometimes on top of the old nest. The nests are large and well made. The body is composed of thorny sticks, three to ten inches in length; then

comes a layer of finer sticks, sometimes bark; then grass for a lining, which has more or less hair and sometimes rags, paper, twine or a few feathers added to it. In a few cases the grass lining is replaced by hair. The nests are externally about ten inches in diameter and eight inches deep, internally about three and one half inches, both in diameter and depth.

In one instance I saw a series of five half completed nests built around the central stalk of a cholla cactus and resting on the branches that grew out from the main stalk; they were all connected, and made a platform two feet in diameter, and only about a foot and a half from the ground. It was built during the winter and was used only for a roosting place. The nest that was used as a breeding place was built five feet away in the top of a small cholla.

The height of nests found containing eggs varied from two to seven feet, but most are built at about three feet. Nests are found in the cholla and sibri cacti, and in palo verde and mesquite trees. Of fifty nests, in the average, forty will be in cholla, seven in sibri, two in palo verde, and one in mesquite.

Fresh eggs may be found on March 1, and later, and the number of eggs in a set varies from one to three,—about two thirds are of three, one third of two, and very few are of one. The time of year has nothing to do with the number of eggs in a set as sometimes the first set is two and the next three; then again it is the reverse. Some birds will lay three sets of three each. The number of broods raised per year is two or three.

If the eggs are taken the birds will build a new nest and use some of the lining of the old one, and will have another set of eggs in twelve days (the shortest time noted); the new nest will be well built and resemble the other in every respect. I have known some pairs to take a month in which to build their first nest of the season. One peculiar thing is that the same pair builds its nests at the same height, if possible, but some build low and others high. In one instance the first nest was five and one half feet, the second was seven feet, the third was six feet from the ground, all in different chollas; and as these were high for the general height of the cholla, the nests were further apart than usual; they were in a straight line, the second fifty feet from first, and the third one hundred feet from second.

Birds desert a new nest very easily, but if it contains eggs it can be moved from one branch to another without their deserting it. When squirrels or snakes take the first egg the bird will often lay the second and third in the same nest.

The eggs vary in shape from oval-oblong to pyriform, and the ground color is generally light bluish green, sometimes light green, or bluish white, minutely speckled or spotted with reddish brown and lavender. The less the number of spots the larger they are. The size of the eggs varies,— $1.28 \times .78$, $1.15 \times .83$, and $1.05 \times .77$; average, $1.15 \times .78$. The eggs are laid one each day; I never knew them to skip a day.

The male assists in incubation, and also in taking care of the young. Palmer's Thrasher is very bold when you are at the nest, and will often come within a few feet, while Bendire's Thrasher will slip off the nest and you may not see it even if you remain by the nest for a half hour or more. — JOSHUA H. CLARK, *Tucson, Arizona*.

Carolina Wren at Lyme, Conn., in December. — On the morning of December 17, 1897, I was surprised to see and hear a Carolina Wren (*Thryothorus ludovicianus*) at this place. As it is the first one I have ever seen in New England, it may be of interest to record the occurrence. — ARTHUR W. BROCKWAY, *Lyme, Conn.*

Nesting Habits of the Robin. — In Mr. Howe's interesting paper on the 'Breeding Habits of the Robin' I notice (Auk, XV, April, 1898, p. 167) that he has not observed an instance of a second brood being raised in the same nest. So it may be of interest to note that here a slightly different record can be made.

I have under observation at this writing three nests in which second clutches of eggs have been laid and are now being incubated. One is in a window corner of my office, — and in this case the lining was not even changed. The first egg was laid just one week after the young of the first brood left the nest.

Another nest is in the cornice of a stable building, and in this instance the lining was torn out and replaced by fresh material. The third nest is in a young linden tree, and I did not notice the house cleaning after the first brood left.

Last year a Robin built her nest and raised a brood in the transom over the door of the Glen Island Museum. She returned about a week after the flight of the first brood, and laid three eggs, but deserted them, when about half incubated. I think I recognize her as the same one that has built in my office window this year. — S. M. McCORMICK, *Glen Island Museum, Westchester Co., New York*.

Notes From Ontario. — The American Magpie (*Pica pica hudsonica*) is recorded as occurring on rare occasions in Algoma, northwestern Ontario. This season several specimens have wandered far east and south. On March 12, 1898, Chas. M. Clarke of Kingston, observed a Magpie near Odessa, and since that date two specimens have been shot and sent to the taxidermist. This is believed to be the first time Magpies have been recorded in Eastern Ontario.

Horned Larks breed regularly in this district. Last year the Rev. C. Young, of Lansdowne, found a nest (eggs slightly incubated) on April 5. This year I found a nest on April 3. The eggs were four in number, incubation almost completed. There is some doubt about the variety of the Horned Lark which breeds here, although I have little hesitation in classifying the eggs found this season as those of *Otocoris alpestris prati*

cola, the pale color and small size of the birds, both of which were closely observed for fully twenty minutes, making identification practically certain. Snow is nearly always on the ground at this time of the year, and the birds search for hillocks of bare earth. The nests are beautifully cupped and carefully built of roots of grass.—C. K. CLARKE, M. D., *Kingston, Ontario.*

An Addition and a Correction to the List of North Carolina Birds.—**BAY-BREASTED WARBLER** (*Dendroica castanea*).—A female *D. castanea* was taken by myself at Chapel Hill, Oct. 2, 1897, and a male was secured on the 8th of the same month. Both specimens were in the immature plumage. They were identified by Prof. Robert Ridgway. I believe this to be the first record of this bird in North Carolina.

CLAY-COLORED SPARROW (*Spizella pallida*).—In part second of the 'Journal of the Elisha Mitchell Scientific Society,' for 1887, published at Chapel Hill, Prof. Geo. F. Atkinson gives a 'Preliminary Catalogue of the Birds of North Carolina.' Under the name of *S. pallida* he says: "Accidental. One taken at Chapel Hill, March 8th, 1886 (Univ. Coll.)." The specimen to which he refers is No. 1050 in the University collection.

In two or more publications since, references have been made to this as the one record of this Sparrow's occurrence in the State. Upon examining the specimen I became convinced that an error had been committed in the identification, and at once sent it to the Smithsonian Institution. Prof. Richmond identified it as being simply *Melospiza georgiana*.—T. GILBERT PEARSON, *Chapel Hill, N. C.*

RECENT LITERATURE.

Two New Popular Bird Books.—Two more popular bird books have just been added to the long series of hand-books for beginners. Though both are prepared with the same object in view, they differ radically from each other in style of treatment of the subject, and also are quite unlike any of their predecessors. One is the work of an enthusiastic ornithologist of wide experience with birds in life, the other by a schoolmaster and an amateur, who has his subject well in hand, and who knows from practical experience the needs of beginners in attempting nature studies. With points of view and previous experience so unlike, it is not surprising that the method of treating the subject here in hand—the birds of eastern North America—should also widely differ.

Mr. Scott's 'Bird Studies'¹ is a quarto of 375 pages, illustrated with about 170 half-tone reproductions of photographs, about one half of them being full-page plates. As these are paged as part of the text, at least one third of the book is thus made up of pictures. "The object of the treatise," says the author, "is to place before students and others who wish to acquire knowledge on the subject, a means to that end. It is an invitation to a more intimate acquaintance with the Land Birds of Eastern North America. That is all." The area included is "that portion of the continent east of the Mississippi River, Lake Winnipeg, and the western borders of Hudson's Bay, together with Greenland and the islands which naturally group themselves with the mainland of the region." Later a second volume, on the Water Birds, is promised, should the present one meet with a favorable reception.

Few ornithologists have had so favorable opportunities for studying the birds of eastern North America in life as Mr. Scott, who for the last thirty years has devoted a large part of his time to field work and during his long periods of sojourn in various parts of the eastern States, in southern Florida and in Arizona has been able to make the acquaintance in life of most of the species here treated. The accuracy of his text, and his evident familiarity with many birds of rare or local distribution, as well as with those of common occurrence, indicate how well he has improved his advantages and how little he is dependent on outside sources for information. He tells what he has to say of the habits of his birds very pleasantly, but adds, nevertheless, very little in this respect to the general stock of knowledge, and rarely introduces personal incident. This we may readily believe is due to lack of space, since not less than 650 forms must be treated in an actual text space of about 250 pages.

The make up of the book presents several rather strange features for a book intended as a guide to the birds of eastern North America, inasmuch as there are no 'keys' for the determination of the species, no generalities whatever, nor any classification beyond the division of the subject under some half dozen headings of such an indeterminate character as to be of very slight aid as a guide to where any given bird may be found described. These headings, — 'About the House,' 'Along the Highway,' 'In the Woods,' 'Across the Fields,' 'In the Marsh and Swamps,' 'By Stream and Field,' — while prettily suggestive, can prove of very little assistance to the beginner in finding his bird. If he knows it already, he can find it by the index, and then read what Mr. Scott has to say of it and enjoy his pictures. If he does not know it, the task of

¹ Bird Studies | An Account of the Land Birds | of Eastern North America
| By | William E. D. Scott | — | With illustrations from original photographs
| — | New York and London | G. P. Putman's Sons | The Knickerbocker
Press | 1898. — 4to, pp. xii + 363. Profusely illustrated with half-tone repro-
ductions from photographs. \$5 00 net.

hunting for it without some sort of introductory key is increased by these divisions rather than lessened, for if all of the Sparrows and Warblers were in one place instead of in three or four the case would be more hopeful. Yet such great tenderness has the author shown for his readers that he has managed to do without not only keys and diagrams but all technical terms, even banishing such easy every-day expressions as primaries, secondaries, wing-coverts and tail-coverts, substituting therefor such circumlocutions as may seem to best fit the case. The descriptions of the birds are variously interwoven with the general text, all the matter being uniformly in large type. A novel feature has also been introduced into the illustrations, there being many reproductions of photographs of bird skins made up as cabinet specimens and of dead birds laid out in a similar attitude. However such illustrations may strike the reader from the sentimental side, especially the 'how-to-know-birds-without-a-gun' class, it must be confessed that they can be made of very efficient service as an aid in identification. There are many illustrations of young birds and birds' nests from life, but many of the full page plates are from mounted birds placed in natural surroundings. The effect in many cases is excellent, but there is a tale-tale expression about the eyes and head, if not elsewhere, that shows the bird is dead and not alive, however clever the artist's conception.

One of the most valuable parts of the book is the ten pages devoted to the Blue Jay. The full page illustrations give, (1) the nest and eggs, (2 and 3), the nest with young, (4) the 'Blue Jay hammering,' and (5) in repose. There are four other figures of young birds of various ages, from six to fourteen days old. The purpose of this digression is to give some account, "by word and picture, of how young birds grow," and the details of the matter thus presented are especially interesting and instructive. Mr. Scott refers to the exercise of the muscles of the feet by the young birds by constantly grasping, first with one foot and then the other, the twigs and rootlets composing the lining of the nest. As shown by some experiments he relates, this constant exercise of the feet is necessary for the proper development of these members, it being, he believes, the natural function of the nest-lining to afford a grasping surface to the feet.

As a contribution to popular bird literature Mr. Scott's book is excellent so far as it goes, but we believe its efficiency as a help to the student in finding out the name of an unknown bird would have been greatly strengthened by adding 'keys,' and consequently some sort of system in the arrangement of the species. The 'systematic arrangement,' is given, it is true, in the form of a list at the end of the book, including the names and classification, from order to subspecies, from the Gallinæ to the end of the song birds. The book is beautifully printed, and with its wealth of illustrations, presents a very attractive appearance.

Mr. Apgar's 'Birds, of the United States east of the Rocky Moun-

tains'¹ is compact and business-like, having quite the air and appearance of a scientific school manual, with its analytical keys, strictly systematic arrangement, and 'glossary.' The thorny road of technicalities is smoothed, not by omitting the technicalities, but by using them, with proper definitions and explanations, aided by cuts and diagrams when necessary. Its purpose appears to be primarily that of a school manual, and for such use seems well adapted. The subject is reduced to simple terms, and is methodically presented. Even the scientific names are marked for accent. Part I (pp. 9-38) treats of the external parts of birds and the terms needed for their description. The treatment is for the most part brief, but is abundantly illustrated by appropriate outline figures. Under the head of 'Nests and Eggs' some very good advice is given to would-be collectors, both as to the taking of eggs and the manner of the taking. Part II (pp. 39-348) treats systematically of the species, giving first a key to the families, with instructions for its use, and later, in their proper places, keys to the genera and species. About fifty to a hundred words, in large type, give the leading traits of the species, both as to color, markings and habits, the measurements and area of distribution being added in a paragraph of smaller type, to which also the various subspecies are altogether relegated. Each species is usually illustrated with a full-length wash-drawing—generally effective and helpful but rarely artistic and often quite otherwise, some of them being the worst we have seen in a modern bird book. It is on the whole very carefully compiled, and therefore trustworthy, though the paraphrasing sometimes fails to fully conceal the author's sources of information.

Part III (pp. 349-372) treats of 'The Study of Birds in the Field,' giving brief directions as to how, when and where to find birds, with keys for their identification 'in the bush,' the keys in Part II being for the identification of birds 'in the hand.' Part IV (pp. 373-389) teaches the 'Preparation of bird specimens for display or study.' This includes instructions for skinning and mounting, with illustrations, and the preparation of eggs and nests. A glossary and index conclude this very serviceable little volume, which will doubtless assist much in the introduction of bird study in schools.—J. A. A.

Cory's Ducks, Geese and Swans.²—Mr. Cory's 'How to know the

¹ Birds | of the United States | east of the Rocky Mountains | A Manual for the identification of species | in hand or in bush | By Austin C. Apgar | Author of "Trees of the Northern United States," etc. | — New York, Cincinnati, Chicago | American Book Company | — No date; copyright, 1898. Sm. 8vo, pp. 415, numerous text illustrations.

² How to know | the | Ducks, Geese and Swans | of | North America | all the Species being grouped according to Size and Color | — | By Charles B. Cory | [= 4 lines of titles] [= 5 lines of titles of the Author's previous books] | — | For sale by | Little, Brown & Co. | Boston | 1897 — Sm. quarto, pp. 95, with 5 plates and numerous text figures.

Ducks, Geese and Swans of North America' is modeled on the same plan as his 'How to know the Shore Birds,' noticed in a former number of this journal (Vol. XIV, Oct., 1897, p. 418). It is therefore sufficient to say that by means of keys and a very liberal use of excellent cuts in the text, the matter of identification is apparently so simplified that even the most inexperienced bird student or sportsman can hardly fail to discover the name of any bird of these groups he may chance to have in hand. It is designed especially for sportsmen and others interested in birds who find difficulty in identifying birds by the ordinary 'bird books.' The cuts, executed with great faithfulness of detail, and generally with pleasing artistic effect, can not fail to guide the reader with great ease to the species sought. The text, aside from the elaborate keys, is confined to a brief description of the external characters, with the distinctive features emphasized by special type, and short statements of the birds' distribution and nesting habits.—J. A. A.

Chapman on Mexican Birds.¹—One of the greatest difficulties in the study of Mexican Birds has been the lack of detailed reports on the avifauna of definite regions by competent ornithologists who have visited the localities in person. Most of our knowledge of the birds of this country heretofore has been obtained from collectors' specimens often so meagerly or indefinitely labelled as to leave us in great doubt as to the distribution and consequent relationship of the various species. Mr. Chapman's paper is just such a contribution as we have needed and clears up many puzzling questions relative to the birds of Jalapa—a locality long known in ornithological literature but little understood faunally. The importance of exact localities with specimens from this region can be appreciated when we learn that owing to the steepness of the mountain slopes, a few hours' ride by rail either way from Jalapa will bring us to faunæ as different as those of the northern and southern borders of the United States. "Indeed," says Mr. Chapman, "it makes a material difference in the day's collecting whether you go south or north of the city." It is no wonder then that our 'Jalapa' specimens seemed to indicate a curious mixture of life when, as Mr. Chapman shows, they came from distinct faunal zones, here only a few miles distant from one another.

In the first part of his paper the author treats of the Jalapan birds, of which 107 species are listed, accompanied by interesting annotations on their distribution, habits and songs. The second part deals with the birds of Las Vigas, in the humid alpine zone, nearly 4000 feet above the temperate zone of Jalapa, though only forty miles away in a straight line. Here 48 species were observed and interesting notes are added on the nesting season, which was here found to be much earlier than at Jalapa.—W. S.

¹ Notes on Birds Observed at Jalapa and Las Vigas, Vera Cruz, Mexico. By Frank M. Chapman. Author's Edition, extracted from Bull. Amer. Mus. Nat. Hist. Vol. X, p. 15-43, Feb. 24, 1898.

Hornaday on the Destruction of our Birds and Mammals.¹—In this report Mr. Hornaday has furnished us with a mass of information relative to the destruction of our wild birds and mammals which should demand the earnest consideration of every ornithologist and sportsman throughout the country, and which cannot fail to prove an important factor in encouraging the sentiment for bird protection which is beginning to make itself apparent.

The bird report is based upon replies from correspondents in all parts of the country relative to the destruction of birds, the most potent agencies in effecting destruction, species which are becoming extinct, and the number of birds to-day as compared with fifteen years ago.

The most serious causes of the decrease of bird life seem to be: (1) the great increase in sportsmen or rather "so-called sportsmen"; (2) pot hunters; (3) plume hunters; (4) egg collectors; (5) English sparrow; (6) clearing away of timber, and (7) Italians, who kill all sorts of birds for food.

The decrease of all kinds of game birds as evidenced by all the reports is startling, as is also the growing tendency in the South to regard various song and insectivorous birds as game, when the real game birds become scarce. As Mr. Hornaday truly says, "the protection of migratory birds must be general," we cannot protect our summer birds in the North if they are to be shot in winter in the South.

In regard to the destruction of bird life in general, the figures given by Mr. Hornaday (Connecticut, 75% destroyed; New York, 48%; Indiana, 60%, etc.) will hardly be accepted by those who have had experience in estimating the numbers of individual birds in the field.

It is not possible to compare the birds of fifteen years ago with those of to-day and say with any degree of accuracy that the decrease is one-half or two-thirds, relying solely on memory. As a matter of fact how many of the persons quoted can state the number of birds breeding in a definite area in their vicinity last year, not to speak of fifteen years ago? It is one thing to guess and quite another to make an accurate census, and without definite figures we are practically stating the ratio between two unknown quantities which we can only compare in memory.

So many things have to be taken into consideration in estimating the abundance of our small birds that it is exceedingly difficult to hazard a comparison even between two successive years unless a person has been constantly afield and is conversant with the vagaries of migration, etc.

It is significant that scarcely any of the more prominent field orni-

¹The Destruction of our Birds and Mammals. By William T. Hornaday, Director of the New York Zoölogical Park. Extracted from the Second Annual Report of the New York Zoölogical Society, pp. 77-126, March 15, 1898.

thologists, whose names appear in the report, give the remarkable figures which influence Mr. Hornaday's estimates.

Game and plume birds are unquestionably on the high road to extermination, and certain species of our small birds are decreasing, but the general destruction in the latter class is probably not nearly so great as Mr. Hornaday's figures imply.

This side of the question is of such especial importance to ornithologists that it seems desirable to emphasize the difficulty of reaching accurate results from such data,—especially as sentiment often unconsciously leads us to make extreme statements.

The estimates on page 95 to which we take exception do not, however, detract from the importance and beneficial effect of this valuable report, and it is earnestly to be hoped that Mr. Hornaday's closing suggestions, both as to birds and mammals, may be seriously considered by our legislators, especially as to the suppression of promiscuous egg collecting and traffic in eggs, birds, and game.—W. S.

Sketches of Some Common Birds.¹—The author has here brought together a series of bird biographies most of which have been published previously in periodicals. They treat at considerable length of fifty-five species and, issued in book form, make a valuable contribution to our knowledge of the life-histories of our more common birds.

They are based on observations apparently all made in central Illinois and evidently extending over a considerable term of years. Mr. Silloway writes with the enthusiasm of a bird-lover and the care of a discriminating bird-student. He presents facts which we do not recall having seen before in print, but to our mind is rather further from the mark than most authors when he writes of birds' notes. Thus he states that the Bobolinks of his region are not superior as songsters to the Horned Larks or Dickcissels, the American Bittern's booming cry suggests to him the syllables "boo-hoo," and while his biography of the Least Bittern shows that he has had excellent opportunities to study this interesting species, he seems unfamiliar with its *coo, qua*, and *tut-tut-tut* notes, saying that he has "never heard an individual utter a call or cry of any kind."

The book deserves an index and in supplying it we trust that the author will also give a prefatory note stating where and when his observations were made.

The illustrations are half-tone reproductions of interesting photographs of birds and nests from nature.—F. M. C.

Oölogical Abnormalities.²—Having devoted much time to securing sets

¹ Sketches | of | Some Common Birds | By | P. M. Silloway | Cincinnati, Ohio | The Editor Publishing Company | No. 327 Pike Building | 1897. 8vo. pp. 331, pll. 17.

² Gleanings from Nature, No. 1. Oölogical Abnormalities. By J. Warren Jacobs. Published by the Author, Waynesburg, Pa. 1898. 8vo, pp. 36, half-tone pll. iv.

of birds' eggs exhibiting some abnormalism, Mr. Jacobs presents us with the results of his studies of one hundred and ten sets of eggs varying in whole or part from the normal in size, shape, or color. The four hundred and thirty-three eggs included in the one hundred and ten sets are tabulated in such manner as best to illustrate their departure from the normal, and under the heads of 'Time of Deposition,' 'Age of Females,' and 'Fertility of Contents' the author discusses the probable causes of abnormalism, giving much interesting and suggestive information. The paper is to be welcomed as an effort to raise the standard of contributions to oölogical literature, which too often consist of mere enumeration of sets and tables of measurements.—F. M. C.

Rowley's 'Art of Taxidermy.'¹—The origin of the art of taxidermy in this country could doubtless be traced to the establishment of Henry A. Ward of Rochester. Having among his customers museums, colleges, and other scientific institutions, which both demanded and could afford to pay for high-class material, the specimens leaving his shops were prepared after the latest and most approved methods. The house of H. A. Ward & Co. consequently became a school for taxidermists and when our museums first added taxidermists to their corps of assistants the positions were often filled with Ward's pupils. Thus W. T. Hornaday at the United States National Museum, and through him the late Jenness Richardson at the American Museum of Natural History, secured posts where, unhampered by commercial considerations, they could give free rein to their ambition as taxidermic artists. With the results of their work as it is displayed in their respective museums, the interested public is fully acquainted. In Hornaday's case there resulted not only series of beautifully mounted animals but a work on taxidermy² which adequately represented the development of the subject treated at the time of its publication.

About these two centers of activity in museum taxidermy there was gathered a force of assistants who were given every opportunity for study and experimentation. Among these was Mr. John Rowley who, as one of Richardson's aids at the American Museum of Natural History, developed such marked talent for his chosen calling that on the lamented death of his chief, in 1893, Rowley was called on to fill his position.

¹The Art of Taxidermy | By | John Rowley | Chief of the Department of Taxidermy in the | American Museum of Natural History, New York City; | Member of the New York Zoölogical Society, etc. | [quotation, seal] | Illustrated with twenty full-page plates | and fifty-nine drawings in the text | New York | D. Appleton and Company | 1898. 12 mo. pp. xi + 244, pll. xx, cuts 59. \$2.00.

²Taxidermy and Zoölogical Collecting. Scribner's Sons.

Since that time Mr. Rowley, assisted by a trained staff, has added many noteworthy examples of taxidermic art to the museum collections, the most effective of which is the group of moose, doubtless one of the finest pieces of taxidermy in this country.

In its preparation Mr. Rowley visited the region represented, and the bounds of his experience include many such expeditions to the lands of the animal afterward to be mounted in his laboratory. The book he has written reflects the wide scope of his training. It is arranged in eight chapters. The first treats of field-work, the outfit, hunting, trapping, etc; the second, of tools and materials; the third, of casting; the fourth, of birds; the fifth, of mammals; the sixth, of fish, reptiles, and crustaceans; the seventh, of skeletons; the eighth, of the reproduction of foliage for use as accessories in groups; and an appendix gives the names of reliable firms from whom taxidermists' supplies may be purchased.

Mr. Rowley's distinguishing characteristics as a taxidermist are patience and originality. His methods are for the most part his own. Instead of the excelsior, clay-covered mannikin, described by Hornaday, he makes a model of gauze-wire covered with plaster composition, practically as hard and dry as marble. Over it he places, not a pickle-soaked, and often discolored skin, but a tanned hide whose colors have not been subjected to the action of chemicals. Thus shrinking, split-seams, and cracking are things of the past. Photographers should note Mr. Rowley's suggestion to use formalin in hardening gelatin films, while his chapter on artificial foliage describes satisfactorily for the first time the manner in which the accessories of our modern groups are produced. In short, this book fully presents the unequalled advance which has been made in the art of taxidermy during the last decade, and as such it must at once replace all other works relating to the subject.—F. M. C.

Birds of Los Angeles Co., Calif.¹—In his introduction the author states that the "present list, with the accompanying notes, is the result mainly of observations made by members of the Southern Division of the Cooper Ornithological Club, and cover little more than the past six or eight years." He is commendably conservative, entering only those species whose occurrence is beyond doubt, and submitting all difficult questions of identification for expert opinion. The list is therefore authoritative. It includes 300 species and subspecies, all being concisely annotated.—F. M. C.

¹Birds of the Pacific Slope of Los Angeles County [Calif.], A List with Brief Notes. By Joseph Grinnell, A. B., Assistant Instructor in Biology, Throop Polytechnic Institute. Publication No. 2, Pasadena Academy of Sciences. 8vo. pp. 52. Press of G. A. Sweedfiger, Pasadena, California. March, 1898.

Sage's List of Portland, Conn., Birds.¹—The interest in the study of birds aroused by the exhibition of the Dr. William Wood collection of Connecticut birds in the rooms of the Hartford Historical Society has induced Mr. Sage, who is in charge of the collection, to print this list of birds as the most practical way of answering the frequently asked question "What birds can we find around our houses?" It is based on thirty years' observation and, as stated in a prefatory note, includes only the "birds seen to alight within the fenced enclosure about my house in the thickly settled portion of the town of Portland, Connecticut." No less than ninety-one species are given, each being briefly annotated as to the time and manner of its occurrence, twenty species having been found to breed. An additional list of ten species seen flying over is given.

The notes here recorded forcibly illustrate the unexpected results which may follow careful observations under apparently very unfavorable conditions, and show that even the restrictions of town-life need not debar one from the pleasures of bird study.—F. M. C.

Worcester and Bourns's Contributions to Philippine Ornithology.²—This paper consists of (1) 'A List of the Birds known to inhabit the Philippine and Palawan Islands, showing their distribution within the limits of the two Groups,' and (2) 'Notes on the Distribution of Philippine Birds,' the latter by Dr. Worcester alone. The first is a tabular list showing the distribution of the species among the islands. In the second paper the zoölogical affinities of the Palawan group are discussed, the conclusion being reached that their affinities are with Borneo rather than with the Philippines. The Philippines are then considered, each member of the group being passed in review, in respect to our knowledge of its ornithological fauna and its zoölogical affinities. A summary of conclusions is given, consisting of fifteen propositions. It is found that a "close relationship exists between the degree of difference in the avifaunæ of any two groups [of islands] and their present and past geographical relationship, those islands which have been longest and most completely cut off from their neighbors showing the highest degree of differentiation."

Steere's 'law of distribution' that "the genus is represented by but a single species in a place," is discussed at length, with a reëxamination of the facts now available, including many data Dr. Steere did not have. The result is a disagreement with Dr. Steere on a number of minor

¹ List of Birds found about my house at Portland, Conn. By John H. Sage, published by the Author. Pamphlet, 12mo. pp. 16.

² Contributions to Philippine Ornithology. By Dean C. Worcester, A. B., Assistant Professor of Zoölogy, University of Michigan, and Frank S. Bourns, M. D., Ann Arbor, Mich. Proc. U. S. Nat. Mus. Vol. XX, No. 1143, 1898, pp. 549-625.

points. Lack of space forbids a statement of the problems, which, however, are of great interest to students of geographical distribution. The paper is illustrated with a map, and a series of charts showing the distribution of certain genera and species in the Philippines with special reference to 'Steere's Law.'—J. A. A.

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NOTES AND NEWS.

MR. OSBERT SALVIN, an Honorary Member of the A. O. U., died at his residence, Hawksfold, near Haslemere, England, June 1, 1898, at the age of 63 years. In his death ornithology has sustained a great loss, and the A. O. U. one of its most eminent Honorary Members. A sketch of Mr. Salvin's life and scientific labors will be presented in a later number of this journal.

DR. GEORGE BAUR, an Associate Member of the A. O. U., died at Munich, Germany, June 24, 1898. Dr. Baur was born in Germany, but had lived many years in this country, and at the time of his death was Associate Professor of Comparative Osteology and Palæontology at the

University of Chicago, and was on a visit to his native land for recuperation and study. Dr. Baur is well known for his researches on various groups of recent and fossil reptiles, and in his special lines was an authority of high standing. His ornithological work was mainly incidental to other lines of research. His name, however, will ever be associated with the fauna of the Galapagos Archipelago, not only through his exploration of its reptilian life but of its bird life as well. His extensive ornithological collections made there in 1892, in conjunction with the late Mr. Charles F. Adams, formed the principal basis of Mr. Ridgway's recent 'Birds of the Galapagos Archipelago' to which Dr. Baur has contributed some further information and criticism (see *Auk*, XV, 1898, p. 207). He has also written various papers on the origin of the Galapagos Archipelago and its fauna.

MR. AND MRS. HERBERT H. SMITH, well known as expert natural history collectors through their labors in Brazil, the West Indies, and Mexico, are now in northern Colombia, with several assistants, working under the joint auspices of the Carnegie Museum of Pittsburgh, Pa., and the American Museum of Natural History of New York City. Mr. Smith and his party will give special attention to insects, birds, and mammals, and will probably remain for a long time in the field, visiting other portions of northern South America after completing their work in Colombia.

MESSRS. OUTRAM AND E. A. BANGS have also an experienced collector, Mr. W. W. Brown, Jr., in the Santa Marta region of Colombia, from whom they have recently received considerable consignments of birds and mammals, preliminary notices of which have already begun to appear.

MR. GEORGE K. CHERRIE, well known to readers of 'The Auk,' for his successful work in Costa Rica and San Domingo, has been for some months engaged collecting birds and other specimens for the Hon. Walter Rothschild for the Tring Museum, in the Orinoco districts of Venezuela, where also the brothers Samuel N. and Edward Klages, of Crafton, Pa., have recently established themselves for natural history exploration, partly under the auspices of the American Museum of Natural History. While they will give their attention primarily to insects, a portion of their time will be devoted to birds and mammals.

THE HON. WALTER ROTHSCHILD has recently announced the successful return of the Frank Blake Webster expedition from the Galapagos Islands, sent out at Mr. Rothschild's suggestion. He states (*Bull. Br. Orn. Club*, No. LIV, p. 11) that "the collection is the largest and finest yet made in that group. The collectors stayed one day at Clarion Island and procured 85 birds, among which was a fine series of the new *Sula* [*Sula websteri*] described hereafter. Of the 105 species enumerated by

Ridgway as occurring in the Galapagos Islands, good series of nearly all were obtained. . . . In addition to nearly all the species known to inhabit the Archipelago, examples of several more were obtained, some seven or eight of which are new to science." Six of these are here described, and include a flightless Cormorant (*Phalacrocorax harrisi*), "the largest known Cormorant," with "wings of about the same size as those of the Great Auk."

THE first annual meeting of the Connecticut Audubon Society was held at Fairfield, Conn., June 4, 1898. The president, Mrs. Mabel Osgood Wright, presided, and the meeting was addressed by Messrs. John H. Sage, Frank M. Chapman, and Rev. Mr. Backus of Westport.

Although the youngest of the dozen or more Audubon Societies now existing, the Connecticut organization has already reached a membership of over 300, while its financial condition will permit it to vigorously prosecute the objects for which it was formed. In awakening an interest in birds and extending popular knowledge concerning their value to man, this Society purposes to adopt a plan as yet untried by its sister Societies. Instead of expending its funds in printing and distributing leaflets, it purposes to secure a stereopticon and set of colored slides of birds, which, with lectures suitable for different audiences, will be loaned to teachers and other responsible parties throughout the State at the mere cost of transportation charges.

THE fifth edition of Chapman's 'Handbook of Birds of Eastern North America' has just been issued by its publishers D. Appleton & Co. It is printed from the same plates as the preceding edition except that the table of nesting dates on page 19 has been rewritten on the basis of additional data.

IN THE 'Report of the A. O. U. Committee on Protection of North American Birds,' printed in the January Auk, I failed to mention that the Wisconsin Bird Day law was introduced in and successfully carried through the Legislature of 1897 by Mr. John E. Morgan, member from Sauk County. Although Mr. Morgan informs me that the bill "encountered no opposition worth mentioning," yet he is entitled to the honor and credit of having placed upon the statute books of Wisconsin a most desirable law, one which I again urge upon members of the Union to have passed in all States where such a law does not now exist. —WM. DUTCHER, *N. Y. City*.

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